

THE HOME GUARD FIELDCRAFT MANUAL

MAJOR JOHN LANGDON-DAVIES

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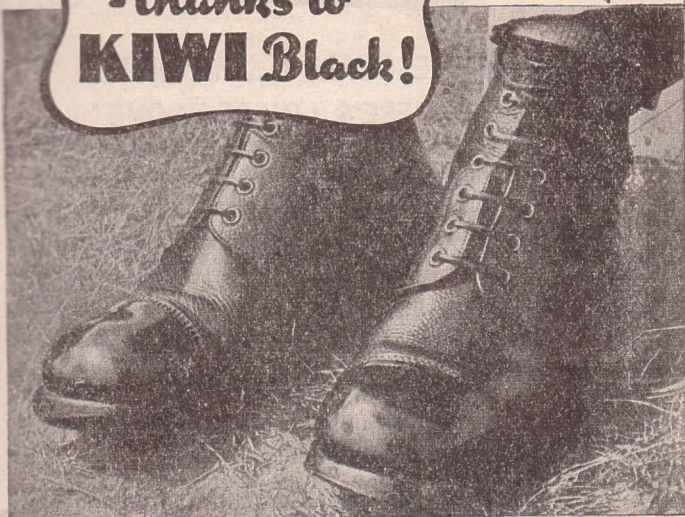
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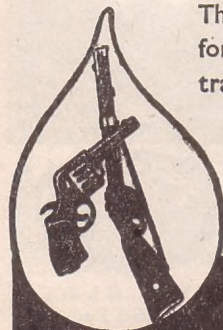


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THE HOME GUARD FIELDCRAFT MANUAL

By MAJOR JOHN LANGDON-DAVIES

Commandant, South Eastern Command Field-
craft School, Burwash, and Author of *Home
Guard Training Manual*

SECOND EDITION

WITH MANY ILLUSTRATIONS

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INTRODUCTION

THE material in this Manual is based upon practical experience as Commandant of the South Eastern Command Fieldcraft School, Burwash, Sussex.

As most of this Manual has been inspired by actual experience of exercises in the field, it is natural that there is a certain flavour of the Sussex countryside about some paragraphs, but I hope this will not put off readers from Scotland or Wales, or those parts of England where the countryside is markedly different.

The principles of fieldcraft remain the same, although the applications may vary.

Particularly is this true of town conditions. Let no Home Guard who happens to belong to a town or factory unit imagine that fieldcraft is not for him. He has to learn to use open spaces, and to find and use cover, just as much in a maze of streets as in the depth of the country.

Although this Manual is meant primarily for the Home Guard, it is hoped that it will be found equally useful to the Cadets and, for that matter, some units of the regular Army.

I am therefore indebted to all those who have worked with me to make that School possible, particularly Capt. Roland Fenrose, my Camouflage Officer, Colonel Sawyer, my Medical Officer and Colonel Hutchinson, O.C. 19th Battalion East Sussex Home Guard.

Among correspondents who have helped with suggestions are Captain R. Pearce-Gould, Lieut.-Colonel D. D. Haskard of Defence Research Studio, and Major Wyatt Foulger. Besides these, there are the various members of the Burwash and other Platoons of the 19th Battalion East Sussex Home Guard who have worked voluntarily, whether as staff or demonstrators, and thereby contributed materially to the School and this Manual.

INTRODUCTION

A great deal of the practical advice in the text is due to the staff of the Army Camouflage Centre, who have also rendered help with certain of the illustrations.

Figs. 9-18 from *Personal Concealment Charts*; Plates 1-12 from *Camouflage Instruction Charts* and Fig. 26 from *Military Training Pamphlet No. 44*, 1940, are by permission of The Controller, H.M. Stationery Office.

Figs. 13-15 : Fox Photos Ltd.

NOTE

The phrase "Airborne Troops" has been used in this manual as this is now the official designation. It covers parachutists, and troops landing from planes or from gliders.

Since these pages were printed, the Burwash Fieldcraft School has become the official South Eastern Command Fieldcraft School. It was too late to alter the text, but readers should remember that this is now the correct title.

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SECTION I

THE HOME GUARD JOB AND FIELD CRAFT

1. The Three Duties of the Home Guard. It has been laid down that the part the Home Guard is to play in the total defence of Britain is as follows:

- (a) To delay mechanized units of the Nazi invader trying to use our roads, and to make them waste their ammunition as well as their time.
- (b) To destroy, or at least to contain groups of airborne troops, which can be got at by the Home Guard before army units can be rushed to the spot.
- (c) To be the eyes of the army, so that troops working over ground that they do not know well can be given the best information, and be guided by the most rapid routes to the best points for counter-attack.

In considering the part the Home Guard must take in modern total defence, there is one important matter which must never be forgotten, something which perhaps has been driven home to us by events in Russia.

The duties of the Home Guard do not stop if their particular part of Britain happens to be temporarily overrun by an invading enemy. It then becomes their duty to make life impossible within the occupied territory.

Invaders have not succeeded in their invasion until they have subdued the country which they occupy. The Home Guard should train himself and make the necessary preparations so that he can never be subdued.

2. Delaying of Mechanized Units. The reason why the Home Guard is necessary for this is that the Nazi

technique of invasion aims at hiding from the enemy its real plan and object for as long as possible. Ten or fifteen plans may be begun, and the Nazi General Staff itself does not know which of these plans will finally be developed. That is settled by events. The plan which seems to be succeeding is persevered with. The rest are dropped.

Our defence and counter-attack against the Nazis depend upon our being able to strike with all our available force against the real plan without being side-tracked by a false plan. The delaying tactics of the Home Guard are vital, because they will enable our General Staff to gain the time needed to find out the right direction in which to attack, and to bring to bear all available force in that direction.

3. Destroying Airborne Troops. The Home Guard are needed for this purpose, because, if the isolated parachutists can be rounded up and prevented either from forming into larger and more powerful military formations, or from seizing communications for use by larger landings later, then the invasion plan will fail in this particular locality.

If the Home Guard are trained and equipped to deal with this problem, it will save the army commanders from having to send their troops hither and thither in all directions after small bodies of the enemy. If they had to do this, it would be more difficult to concentrate their forces for a smashing blow at the right time and in the right direction.

Furthermore, Nazi parachutists are for a period comparatively weak after their landing, and the Home Guard on the spot has, therefore, a very good chance of dealing with them, provided they can be attacked within a few minutes. It would be impossible to disperse the regular army so widely that they could be within a few minutes of any paratroop landing.

It must be said, however, at once, that there is a limit to what the Home Guard can do in this matter. Just as it is wrong to imagine the Home Guard as staying put behind village Maginot Lines, so it is wrong to imagine that they

can roam about the country after parachutists, without limits to their mobility. This question will be fully discussed later in this manual: but it may be laid down that the limits of mobility of the Home Guard are set by two factors:

- (a) Their duty of defending their defended positions, and not leaving them exposed to the enemy by reducing the number of defenders below the safety limit.
- (b) The uselessness of the Home Guard, with its limited training and equipment, trying to attack parachutists once they are fully recovered from their landing and in possession of their full fire strength.

This is not to be taken as meaning that the Home Guard should be content with a defensive attitude except as a last resource, but they must realize that in speed lies their greatest strength. There are many jobs which they could do by themselves if they get down to them quickly, but if time is lacking or is wasted, they will have to be content to join forces with other units before attacking.

4. The Home Guard as the Eyes of the Army. Perhaps the most valuable duty of the Home Guard will be in assisting troops by means of their intimate knowledge of their own locality.

The Home Guard will have to guide troops, who do not know the countryside as well as they do, to the best positions for attacking invaders. They will have to show troops alternative routes when the main routes are cut by enemy activity. They will have to track down and keep contact with isolated bodies of airborne troops, so that the necessary military forces can destroy them as soon as possible.

These duties require training, based upon constant practice over the ground which the Home Guard has to defend.

5. The Training of the Home Guard. All three of these duties require special training, a great deal of it new even to soldiers who took part in the last Great War.

This training can roughly be divided into weapons training, training in tactics, and training in fieldcraft.

These three parts of Home Guard training should never be thought of separately. For example, if a man is trained how to shoot with a Tommy-gun just as one more weapon, he will never become useful with this weapon. He must at the same time know the kind of situation in which the Tommy-gun is useful. He will then realize that it is altogether wrong to start learning the Tommy-gun by learning to fire through its sights.

The Tommy-gun was invented to do better than the pistol at close quarters. It is almost always needed in situations where aiming through the sights is impossible. In street fighting, or in clearing a house, or in patrolling a wood the Tommy-gun will be needed so rapidly that it must be fired instinctively from the hip.

Every Home Guard should from the very first understand the tactical use of a weapon, and not merely the mechanical way in which it can be fired.

In the same way it is no good becoming a first-class Bisley shot unless you know how to shoot in a way to give the enemy as little chance as possible of shooting back.

In modern war the science of concealment has become vital, and practice with a rifle at a rifle range should at an early stage of your training be supplemented by practice with a rifle in the open country, at street corners, at strong-points where your work will actually have to be done.

This is where fieldcraft must be combined with weapon training, if weapon training is to be realistic.

6. What is Fieldcraft? Fieldcraft can be defined as the knowledge which makes it possible for you to do the following things:

- (a) To approach the enemy silently and invisibly, so as to observe him or to attack him.
- (b) To conceal yourself, so that instead of being a good mark to the enemy, you are an insignificant part of the landscape.

- (c) To know your country so well that you can move through it, or guide others through it, with the least possible waste of time.
- (d) To build your artificial cover and your fortifications in such a way that the enemy will not be able to see them either from the ground or from the air.
- (e) To supplement artificial cover by knowing exactly how to find and use natural cover.
- (f) To supplement natural cover by knowing exactly how to camouflage yourself, so as to make yourself inconspicuous whatever the position you may happen to find yourself in.

7. The First Home Guard Job and Fieldcraft. It is a mistake to imagine that Nazi airborne troops are landed without any preparation. Just as in the last war infantry attacks took place only after artillery preparation, so long before airborne troops land the Nazis prepare for their coming in two ways. First, they send their reconnaissance planes to photograph and observe the countryside; second, they send their dive bombers to destroy any military object that these photographs or observations reveal.

It is, therefore, absolutely necessary for the Home Guard to know how to make their nodal points, their strong-points, their action stations, their field fortifications absolutely invisible from the air.

This job falls into three parts:

- (a) Knowledge of what makes a defended position visible from the air.
- (b) Knowledge of how to avoid doing those things, which make such places visible from the air.
- (c) Knowledge of how to conceal with artificial camouflage those things which cannot otherwise be concealed.

All these matters are discussed in Section II.

The ideal at which the Home Guard must aim is to have

all his preparations so well thought out that they do not show up on Nazi reconnaissance air photographs; then it will be impossible for the Nazi dive bombers to destroy them; and the Nazi airborne troops will have to be landed without the necessary air-artillery preparation.

8. The Second Home Guard Job and Fieldcraft.

Just as field craft is needed so as to cheat the Nazi air reconnaissance and to make the Home Guard's first task easier, so it is absolutely essential, if the Home Guard is to deal with airborne troops landing in the vicinity of their action stations.

All reports confirm that the Nazis are splendid in their knowledge of fieldcraft. They sink into the surrounding country as soon as they have landed, and move to their objectives without giving themselves away.

If they are to be successfully countered, it must be by men capable of an equally high standard of fieldcraft. Always remember that, if he is trained to make the best use of it, the Home Guard has the supreme advantage of fighting in country that he knows.

The most vital part of the Home Guard training for this job must be to practise in his own locality with as much realism as possible the job of destroying airborne troops. Only by repeated exercise can the Home Guard *appreciate the time necessary for any job, and therefore the distance over which he can usefully hope to operate.* Section III will deal with this part of his work, by outlining the best possible exercises for practice.

When the Home Guard is carrying out the training outlined in the later sections of this book he should always think of his work in the light of the exercises given in Section III. He should say, "What is the use of this for the job that I shall have to do?"

Fieldcraft is not like weapons training—a matter of learning certain rules and practising them, so that you know exactly how, for example, to strip an automatic in record

time. It should never be considered or practised apart from the practical object in view.

9. The Third Home Guard Job and Fieldcraft.

In order to fit yourself to be the eyes of the army there are certain things that you must add to the fieldcraft you have learned in connection with your second job, that of destroying or containing Nazi airborne troops.

You must, in particular, know how to send back messages and reports to your headquarters, how to read maps, and how to make judgments of military value about your own countryside. It is not enough to know where the waterworks or the railway bridge are situated. You must know the sort of detail which becomes important, if you are asked to choose a route for bringing up troops ignorant of the ground. You must be able to make good judgments, and know how to pass them on to the proper quarter. Section VIII deal with this aspect of your training.

10. Fieldcraft and Animals. Your fieldcraft training can be summed up as being a way of learning by practice many of the things which animals do by instinct. Watch a cat freeze up over a mousehole. See how a frog or a grasshopper or a bird, by its colouring and by its movements, is able to conceal itself. Consider how any animal of prey stalks its victim, or how a bird of prey observes and watches.

We have forgotten to do these things largely because we live in civilized communities, where custom, law, and policemen have put a padded cushion between us and the raw struggle for existence. When the Nazis come the cushion will be removed. The nearer we are to animals, the better we shall be prepared: but we can only regain the wisdom of animals through our brains, through thinking, learning, and practising.

11. Fieldcraft and Town Units of the Home Guard.

Fieldcraft (perhaps battlecraft is an even better term)

simply means skill in behaving in the right way on the field of battle.

For many units of the Home Guard the field of battle will not be countryside, but the streets of their own town. Exactly the same principles apply to street fighting as to fighting amongst hedges and woods.

The Home Guard whose duty it is to defend either the perimeter or a section of his town must know precisely those things stated above in paragraph 6.

To the ordinary trained regular soldier, nothing is more difficult than street fighting. We have seen its difficulties in Ireland, while Spain illustrated this fact again and again. The regular soldier, even if he is a well-trained Nazi, has enormous difficulties to face if the town he is invading is intelligently held by inhabitants who are skilled in fieldcraft.

This will be exceedingly important to remember in the event of an invasion of Britain. The only way in which the Nazis have succeeded in occupying towns is with the dive-bomber. When the Nazi invades Britain we shall certainly have sufficient air power to deal with the dive-bomber as it has never yet been dealt with. The Nazis will therefore have to rely more upon what he can do upon the surface of the ground. If the fieldcraft of our urban Home Guard units is good, there will be very little that he can do.

12. A Map of Home Guard Duties. The accompanying sketch map is intended to make clear how the defence of Britain by the Home Guard has been organized. The sketch map shows an imaginary rural district. There are roads, most of them passing from east to west, and of course the villages and towns are situated on these roads and joined to one another by them. The black dots represent the defended positions. Each local platoon has one of these positions to defend. Round the dots have been drawn circles with a radius of one mile.

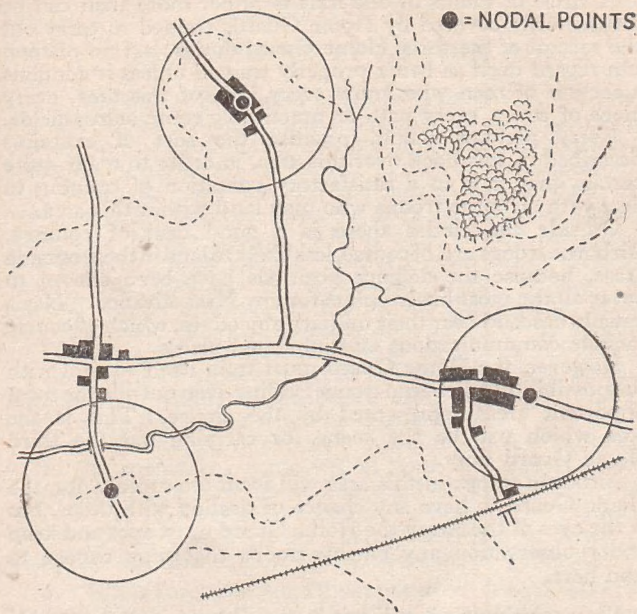


FIG. 1.

The Home Guard platoon responsible for defending the centres of these circles must also be responsible for dealing with airborne troops landing within the area of their circle.

A circle of radius of one mile is rather more than can be satisfactorily covered by Home Guards trained to carry out the second of the three Home Guard duties, but no platoon can regard itself as being properly trained unless it contains a section of men who know every inch of this area, every piece of cover, every path or practicable route across fields.

Every platoon should practise the sort of exercises described in this book over this area, in order to make quite certain that it is in a satisfactory condition of training to deal with airborne troops who may land within this area.

Outside the circles there is a good deal of country. Airborne troops are, of course, less likely to land in these outside areas, because the defence positions have been chosen to cover all the most likely points for any Nazi advance. Nazis usually descend near their military objectives, which of course include communications and inhabited places.

However, the Home Guard must train itself to deal with the possibility of airborne troops landing even outside the most important areas represented by the circles. This is the area which will be the scene for carrying out the third Home Guard duty.

Airborne troops in this area will form too rapidly for the Home Guard to have any chance of dealing with them, but as the eyes of the Army the Home Guard must spot and keep under observation any enemy troops that may choose to land here.

Note. Although it will not be possible for mobile patrols to reach and deal with the enemy before they recover from their landing at much greater distances than we have been describing, nevertheless it has been laid down that the area of responsibility for Home Guard mobile patrols is to be taken as a circle whose radius is approximately $2\frac{1}{2}$ miles.

SECTION II

CONCEALMENT FROM THE AIR

1. **Defended Positions Must be Concealed.** To carry out the Home Guard's first duty, that of slowing up the enemy mechanized units and wasting their ammunition, defended positions are necessary. These defended positions will be chosen first because the enemy has to pass that way, secondly because when he tries to pass, the natural conditions of the ground make it easy to stop him, third because the enemy can be observed more easily than the enemy can observe the defenders, fourth because the natural cover afforded by the lie of the ground, walls, embankments, etc., can be easily supplemented by digging.

These are the chief advantages to be looked for, but all of them will be rendered futile unless the chosen position can remain completely concealed from the enemy before and during the period when he is attacking.

It is easy enough to choose a position which is concealed until the enemy has come within your fire, if only enemy observation from the ground is considered, but it is from the air that the enemy will first try to observe your defence position, and it is from the enemy observing from the air that you will find it most difficult to conceal yourself.

2. **What Does the Air Observer see?** The air observer and the air photograph see everything beneath them. They cannot help observing, therefore, your defended position. There is no way of making it invisible in the sense of a sudden blank in the midst of the scenery, a transparent hole going right through the earth.

What you can do, however, is to arrange things in such

a way that however much the enemy looks at your defensive works he does not recognize them for what they are. To do this requires constant care and precise knowledge.

The reconnaissance plane will take many photographs. It will endeavour to get a complete picture of the whole countryside. That picture will be a pattern made up of constantly repeated details.

In most parts of England the pattern will be made up of cultivated fields surrounded by hedges, with right angle corners to them. In the midst of the fields there will be small woods, paths, streams, farm buildings and so forth.

On the Continent, in the agricultural regions, the pattern will be different because, although there are fields repeated again and again, there are nothing like so many hedges between them. Hedges are very British.

In other parts of England, on the unfertile uplands, for example, there will be miles of rough scrubby country, with constantly repeated bushes, gorse patches, bracken patches, and so forth.

The reconnaissance plane will see all these, and also villages and towns and other human additions to the landscape.

In any district the pattern will be more or less permanent, and typical. An air photograph of most of England shows shadowy lines meeting at right angles. These are hedges. It shows bright streaks across the fields. These are paths. They lead to a farm building or haystack or a road, or a neighbouring village. It is worth remembering that every path leads somewhere.

Now supposing that you were looking at an air photograph which was covered all over with dark lines meeting at right angles, you would at once say: "Those are the hedges round the fields."

Supposing in one corner of the photograph you saw exactly the same kind of shadowy line, but instead of it being rectangular, it was oval or egg-shaped. You would

at once notice that there was something different from the general pattern, a queer object, an oval hedge, an egg-shaped fence. "Something wrong there," you would say, and you would be right.

That oval shape, looking exactly like a hedge except that it has no right angle corners, is the shadow, not of a hedge but of something very different, of barbed wire. Probably it is not so much the shadow of the barbed wire that you see, but the darker vegetation growing underneath it, the grass which has grown longer there because no animal can graze it because of the barbed wire.

That is an object lesson for the Home Guard to bear in mind when it considers the whole question of making its defended positions unrecognizable from the air. The barbed wire gives itself away because, unlike the hedges, it has no rectangular corners. If, instead of having been put in an egg-shape, it had been put in a square with one side of the square laid along an already existing hedge, it would have been just as visible in the air photograph, but it would have been indistinguishable from the hedges on the photograph; it would have fitted in with the pattern of the countryside.

The job of the Home Guard, therefore, in preparing its defended positions is to see that they are not recognized for what they really are, because they might just as well be one of the ordinary features of the countryside which always exist in peace as much as in war.

This is the first rule and the most important.

3. When You Dig, Hide All Traces. Defended positions are associated with a good deal of digging. A trench gives excellent cover from enemy fire, but only enemy fire from the ground. A trench may make a position which might otherwise have been safe because not noticeable, a positive danger because it reveals the position from the air.

Never forget that enemy fire from the ground only comes

in the last stages of your defence; long before your trench can save you from machine-guns or tanks it may have sacrificed you to the dive-bomber.

What is it that gives a trench away? It is not so much the trench itself. It is what comes out of the trench, the soil thrown up and carelessly left all round it.

Of course, there is plenty of soil, builders' refuse, bare patches in the ground to be seen on the face of the countryside even in peace time, but when the bright patch of newly scattered soil is seen on the reconnaissance air photograph, the experienced men using that photograph will at once look around to find the cause of the existence of that soil.

If they see an oval shadow near it, or if they see tracks or other indications which are not normal to peace-time patches of the same sort, then they will decide that that patch of shining soil has some military meaning.

It is therefore the second rule that all soil thrown up from earthworks must be hidden so that if it appears on the air photograph it may be mistaken for some natural peace-time scar.

For example, if you are digging weapon pits in the centre of a field, it will be quite easy to hide the actual pit later, but it will be far more difficult to hide the soil if you leave it thrown up round about the pit, instead of packing it in bags and depositing it underneath the hedges by the side of the field.

The up-turned soil will, no doubt, be just as visible, but it will not suggest to the mind of the enemy observer any suspicious military explanation of its existence.

4. When You Walk, Hide Your Tracks. But suppose in bagging the soil and putting it under the hedge you wear down a path. A very few journeys of a very few men will so wear down the grass of the field that a silver track will be found on the air photograph plate.

There will be plenty of other such tracks visible on the

plate, but they will have one great difference from the new one. They will all lead to some obvious object—for example, they will lead to a gate in the hedge—and here is a track which, instead of leading to a gate, leads straight up to an unbroken hedge. Very suspicious indeed.

You, without thinking, took the shortest cut to the hedge. If, instead of taking the shortest line to the hedge you had taken one thirty yards longer, you would have reached the hedge at a gate. You could then have walked along the hedge to left or right and deposited your soil as before. The track which you would have made would have been just as visible, but this time, because it led to a gate, it might be mistaken for a peace-time track. Even then suspicion might be aroused. Why should there be a track from that gate to a point in the middle of the field?

If you had been really thoughtful, you would have seen to it that instead of all the men taking all the soil towards the gate on one side of the field, some of them took the soil in the opposite direction towards the gate in the farther corner of the field. It would, of course, have taken them a little longer, but then, across that field on the air photograph would have appeared a track going from the gate on one side to the gate on the other, a perfectly innocent peace-time sort of mark.

The third rule, therefore, for the concealment of positions is that all tracks leading to those positions, when they cannot be hidden, must be made in such a way that, when seen on an air photograph, they are indistinguishable from the kind of track which would be perfectly natural on the peace-time pattern of the countryside.

5. Mysterious Rings and their Lessons. So important is it to maintain strict track discipline and so difficult is it to hide any disturbances by digging or otherwise of the soil, that it is worth while to consider the following remarkable fact:

When air reconnaissance photographs were being taken some years ago of the whole of the British countryside, it was noticed that in fields of standing corn and other crops dark rings appeared. These were absolutely invisible from the ground, and unsuspected.

When excavations were made, it was discovered that these dark rings revealed the foundations of round huts made by prehistoric man thousands of years ago. In due course the huts had disappeared, and all trace of their existence, but because all those thousands of years ago the subsoil had been disturbed the drainage was different from the drainage of the surrounding ground. This meant that there was more moisture for the crops in this area, and the crops grew a little bit more thickly in consequence, but not sufficiently more so to be visible from the ground. Because the crops were thicker, they had more "contained shadow." (See also pages 99/100 for contained shadow.) They showed up, therefore, a little darker to the eye of the camera in the reconnaissance plane.

In other words, the reconnaissance plane camera is so all-seeing that it was able to re-discover traces of men forgotten thousands of years ago.

What chance have our earthworks to-day of escaping notice?

Your tracks across a field are shown up in exactly the same way. As you walk you push the grass down, so that it stands lower than the surrounding grass. Because it is lower, the amount of contained shadow, that is to say, the shadow thrown by one grass blade against another, becomes less than that of the surrounding grass, and your tracks show up as a silver line across the field.

6. Brief Summary of Home Guard's First Field-craft Job. We are now in a position to state quite briefly what the Home Guard must do with regard to parts (a) and (b) of the job outlined in Section I, paragraph 7.

A defended position is likely to be given away to enemy air reconnaissance by:

Not fitting into the general pattern of the countryside.

Spoils left about.

Tracks.

Look at the following sketches, which will appeal directly to your eye and help you to remember this always.

Fig. 2 shows the wrong way of putting barbed wire. When the grass grows up because the sheep cannot eat it, an oval shape appears upon the air photograph.

Fig. 3 shows the right way of putting a piece of barbed wire. Some of it is along the hedge, the rest of it grows out from the hedge and turns through a right angle to another hedge. Result: Although just as visible, the shadow of this barbed wire is indistinguishable from the shadow of a hedge.

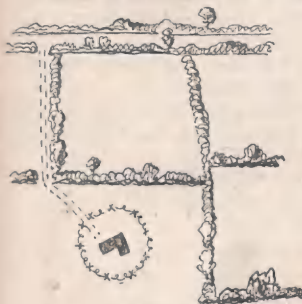


FIG. 2.

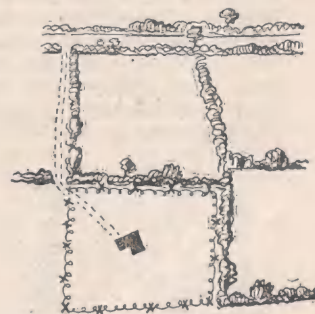


FIG. 3.

Fig. 4 shows on the left a trench which has been carefully prepared so that no spoils are left about. The spoil has been deposited in the hedge on the left. On the right is the badly constructed trench, and the shaded portion is



FIG. 4.

really light-coloured spoils which will be visible at once from the air. Fig. 5.

Note that with the greatest care about spoils it is impossible to hide a trench in the middle of a flat field or a smooth hillside. Every time it is used the grass round it will be rubbed away, and will alter its tone to the air camera.

Figs. 6 and 7 are the same as the last, only the tracks have been added. On the left the tracks are wrong, the men have bagged the spoil and deposited it in the hedge and have walked straight to the hedge. In the right-hand

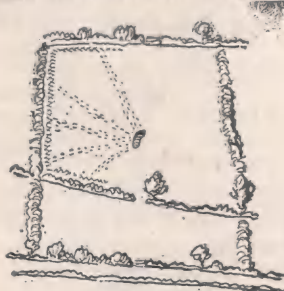


FIG. 6.

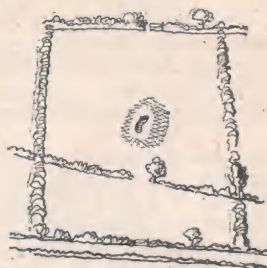


FIG. 5.

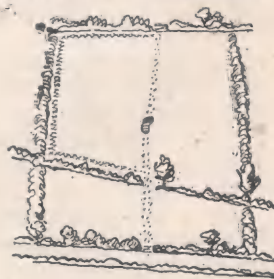


FIG. 7.

sketch the tracks are right. They have walked with their spoils to a gate, and then turned up and down the hedge to deposit it. They have then done the same with a track to a gate on the other side of the field.

7. Artificial Camouflage of Defended Positions. The third part of the Home Guard job is to know how to supplement the care that we have already insisted upon with some means of artificial concealment.

This artificial concealment may be one or other of two sorts. First, it may be natural material brought to the spot for the purpose, branches of trees, fallen trunks and "natural" peace-time rubbish heaps can be used to conceal what otherwise would be visible. Second, special material can be used; wood or corrugated iron shelters to look like a farm building can be used to cover the defence position, thus a few sheets of corrugated iron properly shaped and laid on the ground will look like the roof of a cowshed from the air. A mat of straw or hay spread on wire may well look like a haystack from the air. (But in camouflaging with such methods, do not forget that shadow may give them away.) It is true that something spread on the ground will from the air look exactly like the top of a haystack or a building, but when there are long shadows in early morning or late afternoon it may be very noticeable that one object in the field of view of the camera has no shadow.

For this and other reasons, it is more satisfactory to use the various standard forms of camouflage net.

For the purposes of the Home Guard it is not necessary to describe all the different nets that are used to cover artillery and various forms of field works. It is, however, absolutely necessary that the Home Guard should know how to use the nets served out to them for covering machine-gun posts.

A machine-gun post can be most simply concealed by draping a properly garnished camouflage net over a "spider"

Spiders have been issued to some units of the Home Guard, but there is no need to wait for an official issue, they can be very easily made.

Take six 6-foot lengths of $\frac{1}{4}$ -inch steel wire, and fasten them together at one end by attaching them to a bolt. Bend them so that when they are spread out in all directions the bolt is about 2 feet to 3 feet above the ground. The height of the centre of the spider should be governed by local conditions of ground. There should be enough room underneath to allow of movement for the machine-gun crew, but on no account must the net be allowed to hump up above the skyline, when it will immediately become conspicuous like an artificial molehill breaking the natural line of the ground.

The machine-gun net which is supplied for this purpose is 14 feet square, and scrim, that is, strips of dyed hessian 2 inches wide, is supplied for garnishing the net. Standard colours are green and brown. It does not matter how this is threaded into the net, except that it should never be threaded diagonally, because the material may shrink and cause the net to kink up, and the lengths should not exceed 8 feet. The edges should have less scrim threaded into them than the central portion, so as to avoid heavy shadow being caused.

Of course, these machine-gun nets can be garnished with all sorts of other natural and artificial material, and fuller particulars of this kind of thing are given in Section VI.

8. The photographic supplement which follows is taken by permission from official photographs. Its object is to make you understand what things look like from the air. It would be very desirable if all officers and section leaders could see their own locality from the air, but as this is impossible it is essential that such photographs as these should be seen by all. See after page 32.

(1). This is the peacetime pattern of much of rural England. There is nothing "natural" about this, almost everything is man-made, but made for peace-time purposes. What the Nazi reconnaissance plane is looking for is any

sign that something else is being done besides normal peace-time activities. Your duty is to hide the thing for which it is looking.

(2). This is the pattern of open country near an urban area. The patches are allotments in different stages of cultivation. There is plenty of new spoil, plenty of contrasts between light and shade, but all these pieces of the pattern are due to peace-time activities. It should be very easy, by properly siting trenches, etc., in places like this, to conceal any additional war-time activities by making them fit in to the peace-time pattern.

(3). Here is an example of mixed countryside, fields, open downs, woods, houses and gardens. In country such as this, where the peace-time pattern is mixed and irregular, a little thought will make it possible to choose the sites and shapes of your war-time constructions so that they escape notice.

(4). The pattern of peace-time urban life. Road blocks and machine-gun posts must be carefully made to fit into this pattern also. Above all, the aspect of the open spaces must not be changed by tell-tale spoil and tracks.

(5). The pattern of war has been imposed upon the pattern of peace. Nothing will escape the eye of the enemy in the skies above. The danert wire, the tracks, the spoil outlining section posts and crawl trenches, everything is obvious. The reconnaissance plane has seen it, the dive-bomber will bomb it. Long before the airborne troops land it will have been made very uncomfortable for you.

(6). Here is exactly the same piece of country, but the war-time activities have been carefully re-designed so as to fit into the peace-time pattern. The section posts have been re-sited to fit the ground contours, or have been concealed under growing shrubs. All the spoil has been bagged and deposited in the river. The crawl trenches have been covered with brushwood. Above all, the strictest track discipline has been kept. All the tracks made by the soldiers

CONCEALMENT FROM THE AIR

in designing the position have been carefully chosen, so as to look innocent and peaceful. There is nothing in this photograph to rouse the suspicions of the enemy.

(7). Here we have the pattern of war naked and unashamed. No care of any sort has been taken to fit in to the pattern of peace. Nothing that is useful in peace looks in the least like this. The trenches zigzag about as only war trenches can, the spoil has been left all round them to emphasize every detail. Tracks that only military vehicles would make show the best way in and out. All this is a gift to the reconnaissance plane and the dive bomber.

(8). A pillbox is being made, and no German who has seen this picture will be likely to forget it. Doubtless the shine of the pillbox will later be camouflaged, possibly the spoil in the field and the tracks will be ploughed under, but what is the good of doing all this long after the vital information has been given already? Camouflage is not something to be added at a later date, it is a discipline to be kept from the moment you begin to construct your war-like works.

(9). Camouflage is above all else discipline. Here is what the reconnaissance plane photographs when only one vehicle has passed once over a field of grass. Those white marks are simply the result of wheels pressing down the grass, altering its texture, decreasing the contained shadow, and thereby producing the light tone. To follow that vehicle to its destination, whither no doubt it is going for some military purpose, is easier than to follow the hare in a schoolboys' paper chase.

(10). Here, too, the pattern of war stands out stark against the pattern of peace. A couple of dark eggs—the shell is wire not looking in the least like any ordinary peacetime hedge, the darkness is longer grass. Outside the wire the grass has been grazed, under the wire it has grown thick and weedy, inside it has not been grazed and therefore it stands out darker. The yolks of these bad eggs is the spoil

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2



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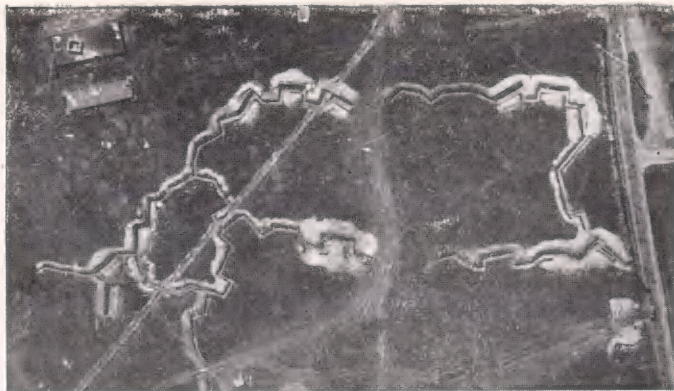
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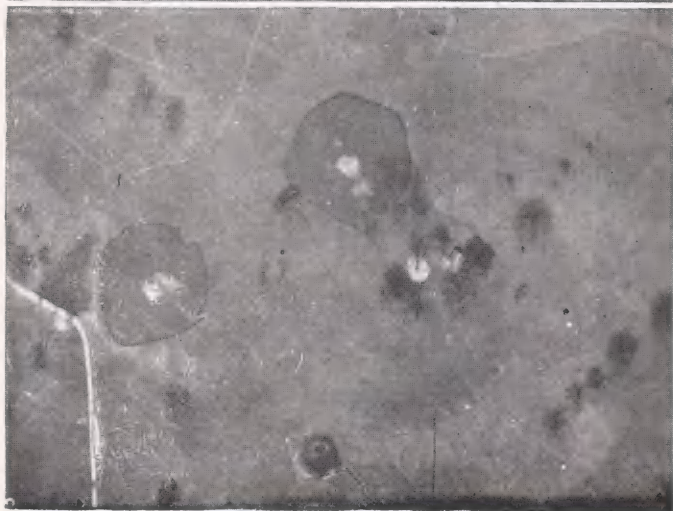
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CONCEALMENT FROM THE AIR

33

around the military object for which the wire was made. The Nazis knew all about this defended area long ago.

(11). Shine reveals things, however carefully they have been concealed. Here a whole camp of Nissen huts has been put in a wood, doubtless in the hope that the trees will conceal them. It is good enough concealment from an enemy approaching at ground level, but useless as concealment against the enemy's eye in the reconnaissance plane. Nothing would be simpler than to paint out the shine from the roofs of those Nissen huts. Nothing is simpler than to avoid the tell-tale shine in any parts of your equipment, but it needs discipline and constant thought. How easy for the enemy to direct its planes so that the camp in that wood is burned up with incendiary bombs. How necessary to avoid shine.

(12). Somewhere hidden in this wood is a camp. The Nissen huts, or whatever the camp is made of, have most of them been carefully concealed, and their shine removed. But what Intelligence Officer, looking at this photograph, would be deceived for a moment? Those tracks, that pressed down grass, are not part of the normal peace-time pattern of our countryside. They mean the presence of many concentrated human beings. No such concentration of human beings would be required near that wood during peace. A war activity is obviously to be suspected.

(13). A section of students at the South-Eastern Command Training School, Burwash, negotiating the stalking course.

(14). A sniper very well disguised against a good background. He will be quite invisible at twenty-five yards.

(15). A sniper in position behind a gate and up against a wall. It is doubtful if he would be seen at twenty yards.

SECTION III

PREPARING A RECEPTION FOR AIRBORNE TROOPS

1. **You must be Realistic in your Approach to Fieldcraft.** It is usually best when learning anything to bear in mind the purpose for which you are learning. Even at school children learn their lessons best if they are given a project. Nobody wants to learn how to conceal themselves simply for the pleasure of so doing. In ordinary civilized life it is so seldom that we want to stalk a person secretly that it seems very unreal to set about learning how to do so. In this Section, therefore, we shall describe a project which is to be borne in mind whenever you study the details of fieldcraft laid down in subsequent Sections.

The project is how to destroy parachutists before they can become harmful, and we shall consider how to do this by working out an exercise in detail. You must not simply read about this exercise in this Training Manual. You must carry it out in your own neighbourhood with your own comrades, and repeat it, sometimes taking the part of parachutists yourselves and sometimes destroying parachutists who have landed in any suitable spot near the position you have to defend.

You must think out variations of the exercise. When the parachutists win through you must discuss together how to stop them the next time. When the Home Guard destroy the parachutists you must convince yourselves that the men representing parachutists have been every bit as skilful as the Nazis themselves would have been.

2. **The Exercise is Set Out.** If possible, use your nodal point or other defended position for the purpose of the exercise. Have it defended by all the men upon whom you expect to rely when the balloon goes up. Have them armed and equipped as they will have to be for action stations. Have them warned and mobilized by the means which will be available when the real moment arrives. If possible, gain the co-operation of the Local Civil Defence bodies, so that as many of the inhabitants as possible practise their proper parts in the course of the exercise.

When everybody is on the alert, twelve parachutists appear at a spot which has not been indicated to the Home Guard beforehand. Their position must be about 1,000 yards from the defended position. They will indicate their landing by waving white flags. They will remain stationary for four minutes, thus representing the initial period when the parachutists are practically immobilized by the difficulty of landing.

The cylinder containing their equipment, represented by a red flag, has dropped within about fifty yards of them. At the end of four minutes they must recover the cylinder and they will have five minutes to drag it into cover and distribute the equipment. At the end of five minutes, that is to say, at the end of nine minutes from the zero hour, they are free to move off against the military objective for which they have landed. There will probably be two or three possible military objectives in the neighbourhood, and the Home Guard will not know beforehand which one is going to receive the parachutists' attention. The parachutists, on the other hand, will have been given exact orders beforehand.

In setting this exercise, do not invent military objectives, like non-existent gasworks or electric-light mains. There are certain to be real objectives in your neighbourhood, bridges, crossroads, etc., and we are out for realism, and not fairy tales. What will the Home Guard do when faced with this problem?

3. The Home Guard must have studied Three Things. There are three subjects about which good information must be possessed before the Home Guard can be successful in this or any other military operation.

First, they must know as accurately as possible the strength and fire power of the Nazi parachutists, and the sort of thing which the parachutists will try to do.

Second, they must know their own strength and fire power, and above all not attempt to do anything which is impossible in view of the limitations of their equipment.

Third, they must know the ground over which they have to operate, the best approaches to parachutists, the routes likely to be taken by the parachutists, the visibility, the dead ground, the cover, and every other detail of military importance.

4. What must we know about the Nazi Parachutists?

- (a) The Nazi parachutist on landing is seldom equipped with anything but an automatic pistol, four grenades and a long knife, which cannot be accurately used at a range of more than fifty yards. The first airborne troops to land often carry machine pistols strapped to their backs, and three or four hand grenades in their pockets.
- (b) The Nazi parachutist is dazed to a certain extent on landing, and there are a high percentage of sprained ankles and other minor casualties.
- (c) His clothing is arranged to assist him in his fall, and he has to re-arrange it before he is in a suitable condition to fight.
- (d) The rest of his equipment comes down by a separate parachute in a container which is unrolled directly the parachutists recover from their fall.
- (e) The equipment consists of light machine-guns, 2-inch and 3.16-inch mortars, and .31-inch anti-tank

rifles, rifles, various bombs and grenades, and special weapons suitable for the particular task in front of the parachutist. We can sum up this equipment by saying that once the parachutists have distributed it effectively amongst their number, their fire power is likely to be greatly in excess of that possessed by a mobile anti-parachutist section of Home Guards.

- (f) The Germans have already dropped various kinds of tanks by parachute. These tanks have so far weighed anything between $2\frac{1}{2}$ tons and 9 tons, and more than one of the lightest tanks can be dropped from a single specially adapted plane. They have also dropped machine-gun carriers on the scale of one per aircraft engaged in dropping a particular unit.
- (g) It is quite a mistake to imagine parachutists being dropped indiscriminately anywhere. They are dropped at special places carefully chosen beforehand to do special jobs. As we have said, they are not dropped until reconnaissance photographs have given a minute picture of the visible defences.

In nearly every operation so far, parachutists have been dropped near good landing grounds, with the object of holding these and preparing the way for troop-carrying aircraft. A particular point to be borne in mind is that in various parts of the war zones parachutists have been dropped away from such landing fields for the specific purpose of attracting the attention of the defence away from the real objective, which is the landing field.

The Home Guard should ponder on this. It means first of all that he is of vital importance because he can deal with such decoy landings instead of the Army being dissipated, and it also means that if his job includes the defence of landing fields he must not allow himself to be decoyed away from the chief job that he has been given.

5. What will be the Home Guard Strength? A mobile anti-parachutist section of Home Guard is not likely to be armed with anything except rifles, grenades and perhaps Tommy-guns.

This means that they will not be expected, except as a last resource, to give battle to any large number of fully equipped parachutists. Their job is to take advantage of the first few minutes after the parachutists have landed, and before they become fully equipped. After this, their fire power will limit their usefulness to the job of containing the parachutists, ambushing them, shadowing them and delaying them.

It is of no use expecting the Home Guard to imitate successfully the tactics which would be adopted by a fully armed section or platoon of regular soldiers supported by machine-guns, mortars and other more powerful forms of fire.

6. Knowing the Country. Besides knowing a certain amount about your enemy and about yourself, you must know the ground over which you are to fight. This subject will be treated in detail in the appropriate Section. Here it may be laid down, however, that unless the ground between your action stations and the parachutists is such that you can reasonably expect to approach within killing distance in nine or ten minutes, there will be no point in the anti-parachutist section racing hell for leather at the parachutists in an effort to destroy them before they become too powerful.

We can therefore say that for the purpose of this exercise, and for the purpose of the second chief duty of the Home Guard as laid down in Section I, the country that has to be studied and known beforehand in all its details is limited to a circle of certainly not more than one mile radius round the action stations.

From all this it will appear that the Home Guard, on seeing the parachutists land, must immediately make up its mind which and how many of the following actions it can carry out:

- (a) Can it rush at top speed directly against the parachutists so as to destroy them within the first few minutes?
- (b) Can it rush at top speed to a point from which it can fire at the cylinder containing equipment, with a view to destroying it before the parachutists can avail themselves of their equipment, or at least to make it impossible or costly for the parachutists to approach and open it?
- (c) Can it contain the parachutists by taking up positions in good cover all round them, in such a way that all the bolt-holes have been closed so that when the parachutists move, as move they must, they can be destroyed from such good cover that their superiority in fire power will not save them?
- (d) Can they send off immediately parties to hold the various military objectives, against which the parachutists may have landed, and to defend them until more help can arrive?
- (e) Can they do any or all of these things in such a way that communication is kept up between the sections and groups who have moved out to accomplish the various objects, so that:
 - (i) Headquarters shall know exactly what is going on, and what to do with reserves.
 - (ii) The earliest possible information can be received of the real objective of the parachutists so that the men defending that objective against them can be reinforced by the men defending objectives which turn out not to be threatened?
- (f) Can they do any or all of these things and at the same time not weaken the defence of their nodal point or other defended position, bearing in mind:
 - (i) That their first duty is to make sure of the defence of their defended position.
 - (ii) That there is no assurance that further groups of parachutists will not descend at other points

and threaten the defended position from another direction?

7. What will the Parachutists Do? When this exercise is carried out as part of the training at the Burwash Fieldcraft School, the parachutists are left to work out their problem entirely on their own. We usually use very well-trained regular army soldiers for the job, and nearly every week we have different personnel. The parachutists never do the same thing twice, but the following is perhaps the wisest tactical approach to the exercise from their point of view:

- (a) Although exhausted by the fall, some of them are able to observe accurately and the approach of the anti-parachutist section is seen. The danger that it may reach ground from which it can destroy the cylinder, or prevent the parachutists approaching it, is realized. Therefore, at the end of four minutes some of the parachutists are detailed to go as fast as they are able towards a position from which they can stalk the anti-parachutist section, and either destroy them or decoy their fire.
- (b) The parachutists desire to know whether their military objective is being defended. If so, in what force? If not, whether it is possible to occupy it or destroy it, as the case may be, before the Home Guard reaches it to defend it. Three parachutists are therefore despatched, armed with nothing but their automatic pistol and one Tommy-gun, to get to the military objective and either to take up useful positions, or to report back, or to destroy it.
- (c) The main body of six remains until it has been able to avail itself of the full equipment in the cylinder.

In practice twelve is too small a number for the accurate carrying out of these three separate operations, but if more parachutists are used in the exercise that is the tactical out-

line, and the Home Guard should foresee the possibility of (a) and (b) and not simply regard their job as the dealing in the best possible way with (c) only.

8. The Part of Fieldcraft in this Exercise. Bearing all this in mind, it will be seen that the success of the Home Guard, or for that matter the success of the parachutists, will depend upon good fieldcraft.

- (a) The Home Guard will have a great advantage over the Nazi parachutists if they have included in their training accurate and detailed reconnaissance of their countryside long before the invasion begins.
- (b) Fieldcraft is needed so as to choose without a moment's indecision the correct route for approaching the parachutists most rapidly.
- (c) Knowledge of the use of cover and of how to move invisibly and inaudibly is essential if the Home Guard is to be able to contain the parachutists from cover, or reach positions within their range of fire from which to intercept them on their way to their military objective.
- (d) Without an accurate knowledge and practice of personal concealment and camouflage, the Home Guard will give themselves away, whether moving or stationary, and therefore fail to counter the parachutists' superiority in firing power by the use of the element of surprise. Once this is fully realized you will understand why the instructions laid down in succeeding Sections are important. That is why you should begin by thinking out and then carrying out this realistic project. It will make your practice of the details of fieldcraft real to you.

9. Warnings about this Exercise. In carrying out this exercise, you should be very careful not to forget that although it has been made as realistic as possible, there are

one or two ways in which it does not correspond to reality. The chief of these are:

- (1) That you know that parachutists are going to descend somewhere within your area at a stated time.
- (2) That those parachutists will have landed in your area for the specific purpose of attacking your military objectives.

By all means base your training upon these probable events, but do not forget that you may also have to face up to parachutists who have dropped in a neighbouring area moved into your own without your having been informed, and for some reason, of their original landing, and that it may well be that the parachutists, even if they do land in your area, have not landed there in order to attack your own particular objectives. They may be going to move out of your area.

The fact of not bearing such points in mind is often seen when the exercise is done at the Burwash Fieldcraft School. Here are some examples:

Often the anti-parachutist Home Guard section is told by its leaders to dash off and surround the military objective which they have assumed is going to be threatened, while others are told to go off to apparently suitable positions to contain the parachutists on the assumption that they will move towards these military objectives.

Now, that is all very well, but supposing the parachutists move off somewhere else, those men who have pinned themselves to the defence of the military objective, or to suitable positions between that objective and where the parachutists were seen, for the purpose of containing them, lose all contact with the parachutists. Soon they have not the slightest idea where the parachutists are, and they have therefore failed in their duty.

You must always remember that the duty of the Home Guard is to establish immediate contact with the parachutists

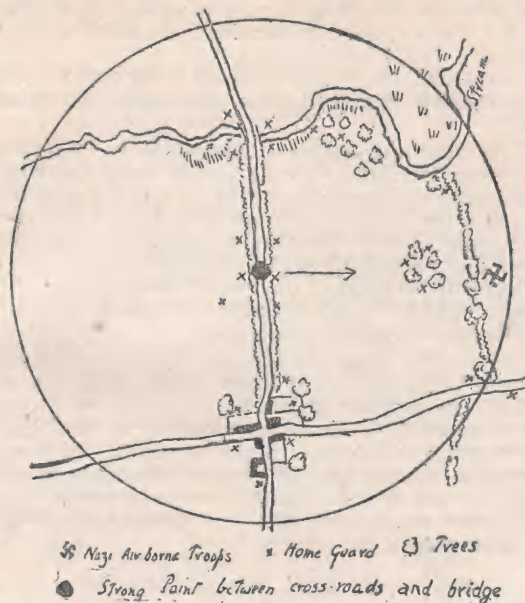


FIG. 8.

Action station surrounded by a circle one mile in radius. At a point within this circle near the circumference the parachutists land. A cross-roads is depicted to the south of the action station, and a bridge over a river somewhere to the north. An arrow pointing at the parachutists from action station depicts the anti-parachutist squad going directly at their objective. Crosses surrounding the parachutists depict the Home Guard squad who have taken up positions to contain the parachutists in case they are not annihilated. Other crosses at suitable points near the two military objectives represent Home Guard in position to defend these. Finally, further crosses depict the garrison with its outpost maintaining the defence of the nodal point itself.

44 A RECEPTION FOR AIRBORNE TROOPS

troops, whether for the purpose of scuppering them or merely for the purpose of observing them and keeping them in sight.

One week-end the very intelligent Irish corporal leading the parachutists described their movements afterwards as follows:

"The order was that we should not move for 9 minutes. I therefore decided the Home Guard would think that we would move on the tenth minute, so I told my men, after the 9 minutes were over, to get into hedges and up trees and to stop there for another 10 minutes, except for two decoys that we sent forward to draw the Home Guard off.

The result was that all the Home Guard chased after the decoys, and all we had to do was to follow behind them, and they never looked round once."

That shows the danger of not keeping one's mind open to all sorts of possibilities. It is, of course, tactically correct to defend the military objectives, and also to choose the proper semi-circle of positions whereby to seal the bolt holes when the parachutists begin to move, but these two operations in themselves will be a failure unless also scouts are sent forward to make immediate contact with the parachutists, and runners are used to acquaint everybody as to what developments are taking place.

SECTION IV

HOW TO MOVE

1. How to Study the Next Three Sections. Do not study any detail of the next few Sections on its own. Do not say "I am now going to learn how to move silently for half an hour." Keep well in mind the project outlined in Section III. This project is a realistic forecast of something practical that you may have to do. For it you will need knowledge and practical experience which will enable you:

- (a) To move correctly when the time comes.
- (b) To make the best use of all available natural cover.
- (c) To increase this cover by camouflage and concealing yourself.
- (d) To keep your headquarters informed of everything you see and do.

In this Section we deal with the first of these

2. Fire Power and Movement. Correct movement is more important than ever, since the coming of the light automatic weapon. It is hard to realize the superiority of even the Tommy-gun over the rifle when it comes to firing at close quarters, and therefore begin your study of how to move correctly by a simple demonstration which will strike your imagination and convince you of how serious a proposition the Tommy-gun or any similar automatic weapon may be.

This is how we illustrate this at the Burwash Fieldcraft School.

We have the students, forty or so in number, sit as close

together as they can get, with their rifles across their knees, facing a gap at thirty yards formed by a gateway. We ask them how many rounds of accurate rapid fire they can shoot in a minute. Sometimes they claim fifteen, but they finally agree that probably eight rounds per minute is the maximum for accurate firing. That means that the forty men huddled together can fire 320 rounds per minute at figures running across the gap. This is less, not only than the Tommy-gun's theoretical fire, but than the Tommy-gun's practical fire, provided its ammunition is in the 50-rounds' containers which for the present have been withdrawn.

In short, those forty men, for the purpose of picking off figures running across the gap, are less powerful than one man armed with one Tommy-gun would be in the same position.

You need some actual demonstration such as this to make people feel to the full the importance of modern rapid automatic fire, and therefore the importance of knowing how to move across that gap, or, for that matter, to move correctly in any situation.

The Nazi parachutists will be armed directly they have reached their container with more powerful automatic weapons than the Tommy-gun, and so it becomes clear that success in our project depends partly upon correctly practised movement.

3. Rapid Moving. The parachutists have been spotted. The anti-parachutist section starts off with orders to get as quickly as possible to a suitable position for menacing the cylinder. How are they to move?

Since they want to get to their objective as quickly as possible, they will not take much account of cover.

Having made this statement, I wish to qualify it immediately. I have heard Home Guard Commanders instructing their men and saying: "In this war speed is all-important, therefore you have not got time to take cover; what you must

do is to race straight at the enemy across the fields and get him before he has recovered from landing."

This is nonsense. There is a golden mean for everything.

It is perfectly true that speed in this particular operation of getting to the Nazis before they have recovered is the most important point, therefore you will not take measures for concealing yourselves which involve slow motion such as crawling. On the other hand, surprise is as important as speed, and if by going fifty yards or so round you can keep under cover all the way, then you will undoubtedly be justified in taking the slightly longer journey.

A certain amount of risk can be taken, of course, because the Nazis probably do not know the exact direction from which to expect you, but the best route will be the one which will take you rapidly towards the Nazis or their cylinder, and at the same time enable you to surprise them at the end.

If speed demands moving without cover for part of the route, then by all means choose the route with the bad cover at the beginning, if possible. If you cannot be under cover all the way, at least race towards a good piece of cover within firing distance of the enemy.

Another mistake to avoid is that of starting off as if for a 100 yards' sprint.

Watch a hunting animal about to chase its enemy. It does not start off at top speed. For a second or so there is thinking to be done, and decisions to be made. No time need be wasted by the section leader or his men in thinking up their job, because they have been told what it is already, and they ought, therefore, to be mentally prepared to start off directly the parachutists have been sighted, but there the choice of route to be made.

The whole section knows the country in a general sort of way, thanks to careful previous reconnaissance, but as they do not know where the parachutists will drop until the moment comes they must think out their route. They must

conquer their natural impulse to start off in a bee-line for the enemy if that is going to lead them into difficulties later.

It is also bad for physical reasons to start off at full speed.

You will be thinking out what you are going to do, you will be excited, and you will be holding your breath in any case, and soon you will be out of breath and probably winded.

Train to keep your body still and relaxed while you are deciding on the route you are going to take, then start off at a good trot, but no faster, so that if you have to make a sudden change of plan you will not be jerked up with the naturally bad effect that that will have on your wind.

Once you have got going, you can go all out, but the leader must see to it that he gives his men full warning when the lie of the land makes him slow down, so that they do not have to put on the brakes too violently, in which case they will certainly skid.

You must practise breathing in a controlled way, always remembering that when you get to the other end of your run you have got to be in a physical condition for accurate shooting; in fact, every Home Guard must train as carefully for this kind of work as an athlete does for a mile race, he might get the practical help of a trained athlete in this matter.

Even men over 40 not expecting to break records can train to do their best with a minimum of fatigue.

4. Spacing Yourself for Rapid Movement. Return to the demonstration outlined in paragraph 2. Have half a dozen men concealed by the side of the gap, instruct the men who are sitting close together with their rifles across their knees that these men are about to cross the gap, and that they are not to take up their rifles until they see a man actually crossing it, and that they may only shoot when they have an honest target.

Next instruct the six men to get across the gap one after the other at even distances as fast as they can. The first, and probably the second man will get across the gap un-

harmd, but the other four will get the bullets intended for the first two, as well as some intended especially for themselves.

The lesson of that is that when you are moving rapidly, especially across gaps, you must not move at even distances or at too few paces from the man ahead of you. If you move at even distances, the enemy will continue to shoot "on spec," while if you move too close to the man in front you will get the bullets meant for him.

Now get your six demonstrators to leap across the gap at uneven intervals, and with considerable pauses between each man. The men covering the gap with their rifles will miss the first man altogether, the second man will not get the bullets meant for him, but he will run a greater risk as he crosses, because now "the enemy" is on the alert. However, a man leaping across a 10-foot gap is a fairly poor target, and he may quite possibly escape.*

Keep this demonstration in mind, as its lessons for how to move are obviously useful for the project we are studying.

Careful training in how to move and how to space your men is essential also for street fighting. It may be necessary to cross a gap which is under steady fire from the enemy's automatic weapons. You should train yourself to know exactly what kind of automatic is being used, and therefore the number of rounds after which the magazine or container or belt has to be changed. You can then very often get across the dangerous gap in safety, by choosing the moment when the enemy has to stop firing because he has come to the end of a quota of ammunition.

The Nazi parachutists will discover the general route that the anti-parachutist section is following, since these men are in too great a hurry to use cover, and they may very well keep their eyes on some gap across which the section will have to hurry. However fast the section is going, and however

* See Note 1, p. 168.

little attention it is paying to cover, it should therefore not neglect the obvious precaution of spreading its members out in unequal distances.

It is also obvious that since the leader may have to halt you very suddenly, there should be no danger of the men in the rear crashing into the men in front. On the other hand, the section is moving as a single unit, unless it is otherwise instructed, and there must be perfect communication between the leader and the last man. It will therefore usually be better not to advance in single file one behind the other, but in an irregular way, so that everybody, down to the last man, can keep his eye on the leader. If this is impossible, all signals and messages must be rapidly passed down from one man to another.

All this means that although you are racing off to an agreed point, you must not do it automatically. You must be on the watch all the time, and both think for yourself and keep in touch with what the leader is thinking, with every step.

5. A few more Notes about crossing Gaps. By "gap" I mean any place where cover is non-existent and, therefore, other things being equal, the only safety is in rapid movement.

An important point to remember is the possibility of "blanketing" a gap. That is to say, putting up an artificial screen which will enable you to cross it. This is especially useful where a gap is going to be constantly used, and where it is constantly under enemy fire. For example, this may happen in street fighting.

At the beginning of their Civil War, at least, the Spanish were ignorant of blanketing. I learned this personally in Toledo, where I was expected to cross gaps, under constant fire, which could easily have been blanketed. The Spaniards seemed to think that it was a somewhat cowardly idea when it was suggested to them. They seemed to like to take the risk; I did not.

Very often a screen of sacks across such a gap would enable you to pass time and again in perfect safety, since the enemy cannot spatter machine-gun fire constantly for twenty-four hours at any particular point, and as he cannot see you crossing he would have no other way of preventing you.

In the country there are occasions when ingenuity is required to make the crossing of a gap possible and safe. An enemy at some distance will not bother about a gap in the hedge unless he actually sees men crossing it. It is therefore possible sometimes to fill the gap with sufficient cover without his noticing what is happening. If, on coming to such a gap, you push slowly and carefully a few branches along the ground, so as to give a few inches of cover, you will be able to have a whole section of men crawl behind this cover without giving themselves away.

It is sometimes possible for a man, properly camouflaged, to crawl slowly into position along the gap and lie there on his side, thereby giving enough cover for the rest of the men to pass unnoticed. This is possible because it is motion across the gap that gives you away and once the man is at rest in the gap he is not likely to be seen. But it is not suggested such heroic missions will often be necessary.

If none of these methods are possible, the section must leap irregularly across, in which case each man must train himself to waste no time looking towards the enemy, as he crosses, and if there is any sign that the enemy has observed the crossing great care must be taken to find cover from fire as well as cover from view on the other side of the gap, and if necessary, to lie flat in a fold of the ground rather than to advance immediately, trusting to the cover of the hedge.

Nobody should cross a gap until they have carefully examined the lie of the land on the other side, and made up their mind what they are going to do. The section must not bunch behind the hedge on the edge of the gap before leaping across, as an intelligent enemy will certainly rake that position with fire if he sees the movement of the first man.

Naturally these points will not arise if the anti-parachutist section is to continue as rapidly as possible, but it is worth while considering them here because, although the section started off with the intention of keeping up its rapid movement, something may happen to force them to alter their plan after they have started. They are not expected to sacrifice themselves uselessly in the cause of speed, and they must be in the proper frame of mind to change from concentrating on speed to concentrating on concealment, if the action of the enemy makes that necessary.

6. **Silent Moving.** When speed is the most important thing, both concealment and noiselessness will be sacrificed to a certain extent, though they should never be unnecessarily sacrificed, but sooner or later the anti-parachutist section which has dashed off to cover the cylinder with their fire will reach the selected position for this purpose, and that position will no doubt afford them cover from the enemy, otherwise it would not have been chosen.

They have now disappeared from the enemy's view. They will not want to stop at the point at which they disappeared, they will want to move up closer or to the perfect position, unobserved by the enemy. This is such an important point that the section leader will be wise in drilling his men as follows: Run across open ground to cover, followed by four controlled "movements"—DOWN—CRAWL—OBSERVE—FIRE. The second part of this, "Crawl", means that the men must concentrate on learning how to move silently as well as unobserved. They must now concentrate on moving silently.

It is difficult to explain how to do this without actual ocular demonstration, and I will begin by giving particulars of the "hundred yards course" that I have prepared for use at the winter session of the Fieldcraft School at Burwash.

The idea of this course is to show the difficulties of moving silently over various kinds of surfaces and to give

the students practice in the best ways of surmounting them.

The course is 3 feet wide and is boarded on each side so as to retain the various materials spread over each section. It is divided into ten sections, 10 yards long in each case. Here are the surfaces and other particulars of the ten sections:

SECTION 1: Covered with beach pebbles, depth 6 inches.

SECTION 2: Covered with sand.

SECTION 3: Covered with broken breeze-block.

SECTION 4: Very rough and covered with broken bricks and tiles of all sizes.

SECTION 5: A concrete surface with a hurdle made of sticks, etc., every few feet, but at irregular intervals.

SECTION 6: Filled with dry sticks and dead leaves.

SECTION 7: Covered with soft mud kept wet.

SECTION 8: Covered with long grass and tall weeds.

SECTIONS 9 AND 10: Covered with short turf, with occasional obstacles such as branches.

You may not be able to make such a course for yourself, but you see the various kinds of surface you should practise walking over. Find out how best to do so silently.

As used for instruction at the School, here are some of the practical hints which the course will serve to emphasize:

SECTION 1—BEACH PEBBLES. For two-thirds of the width the pebbles are laid on a foundation of wood, along one side they are laid directly on the soft ground. The pebbles on the wood remain dry and separate. Those on the soft ground cake together more.

Here you have the conditions of most gravel paths. You will find that you can move most quietly at the edge where the gravel has usually become caked with mud, and therefore each pebble does not grind against its neighbour as you move.

RULE 1: *Silent walking is easiest at the edge of a gravel road.*

The whole art of walking silently on loose gravel is to reduce the amount of grinding and shifting. There are

two ways of doing this, practise them both, and choose the one which you find most useful.

RULE 2: *On loose gravel never come down toe first, either bring down the heel and then the outside of each foot and then turn the foot over flat, or place the foot flat on the ground.*

Be very careful not to kick pebbles either with your toe or the front edge of your heel.

RULE 3: *In practising, always listen to the noises made by your comrades when they are trying to walk silently on gravel or any other surface. They will be the same noises as an enemy will be likely to make.*

SECTION 2—SAND. Sand is very easy to walk on when wet, but of course it leaves footprints more than any other surface. If you must cover your traces in crossing a short piece of sand, you must smooth out your footprints with a smooth stick.

RULE 4: *Study footprints, know the mark left by a Home Guard or Army boot, try to get hold of a German boot and compare the footprint made by it.*

RULE 5: *If concealment of footprints is necessary, and you are in a hurry, either avoid sand altogether or move in dry sand or in reeds or (by the seaside) where the waves will immediately obliterate your steps.*

Sand can be used to cover a small part of a track over which you are suspicious that the enemy may be passing. It is always worth while to lay a "track trap" for the enemy.

SECTION 5—CONCRETE SURFACE. Hard road surfaces cannot be negotiated silently at any considerable speed. There is no need, however, to make the amount of noise usually heard when Home Guard or soldiers march down the village street.

The chief difficulty is the steel cleats. Some Home Guard have substituted rubber for these, although this is contrary to orders. If you have to cross a road while stalking a post, it may be necessary to muffle your boots with sacking, but it is worth while to remember.

RULE 6: *Silent movement on a hard road surface is usually easiest at the edges of the road where the surface is softened by mud and rain-washings, but be careful not to stumble over hidden objects or to brush against grass, etc.*

The object of the hurdles in my course is to train students to step over obstacles and to place their foot down on the other side silently. This is particularly important, of course, at night.

RULE 7: *At night get into the habit of feeling for objects with your calves, and if it is very rough country bend your body so that your hands will find an object before your feet.*

You will often find it easiest to feel for such hidden objects if you move sideways.

SECTION 6—DRY STICKS AND DEAD LEAVES. When these are very close together, they become an almost insurmountable obstacle.

RULE 8: *Always avoid using the side of a stream running through a wood, especially if it is in a deep gully. Such a route may offer perfect cover from view, but the amount of dead sticks and undergrowth will give you away to the ear of any listening enemy.*

RULE 9: *When you have to move through undergrowth, as when you are combing a wood, move sideways to reduce the amount of disturbance and resulting cracking of wood.*

RULE 10: *When you have plenty of time, and are taking cover in a wood, take the trouble to remove all the dry sticks in your neighbourhood, so as to give you more ground over which you can move silently.*

In a wood the enemy will instinctively listen for the cracking of undergrowth, it will be his chief guide. Concentrate, therefore, on taking this guide away from him.

SECTION 7—SOFT MUD. The difficulty of mud is, of course, the sucking noise when you remove your foot. This noise can only mean one thing, and will give you away immediately. You must either avoid the muddy piece, or cover the mud with grass or sacking. You may even remember Sir Walter Raleigh's cloak, and use your greatcoat.

SECTION 8—LONG GRASS AND TALL WEEDS.

RULE 11: *Home Guards must either remove their anklets or wear their trousers outside them when negotiating long grass, otherwise they will produce a loud series of tappings.*

RULE 12: *In long grass always lift your foot high and bring it down flat, but practise not to lose your balance in so doing.*

SECTIONS 9 AND 10—SHORT TURF, WITH OCCASIONAL OBSTACLES. These last two Sections are useful at night, and also by day if the student is told to do a final sprint, picking up his feet as he runs.

In using our course at the School, we emphasize the following vital points:

- (a) Speed must be considered as well as silence. Perfection can never be found and you must sacrifice something for something more important in nearly all military operations. It is probable that absolute silence could be maintained over the whole course by a snail or a man imitating a snail; this won't do.
- (b) The course must be negotiated at a medium slow pace, and rapidly. Sometimes you may find that you make more noise when you go slow. There is such a thing as overcaution, especially if your balance is bad.
- (c) Balance is everything. It is no good learning to put your foot down in some special way in order to achieve silence unless at the same time you learn to do it without losing your balance.

The main rules about this are:

RULE 13: *To keep your balance, bend the body so that there is as much weight behind the foot as in front, that is to say, get in a position half-way between stepping forward from the waist and squatting backward.*

RULE 14: *When you move, see that the weight of the body is over the foot on which you have landed, and learn to transfer the weight directly you have satisfied yourself*

that your foot is not going to land on a twig or other revealing object.

The movement is rather like that of a man skating, and will come easily enough to anybody who has done a good deal of dancing or boxing.

When you are waiting, on the other hand, keep your weight distributed equally on both feet. This will enable you to start off to either side when necessary.

- (d) The course must be negotiated both by day and by night.

Do not practise silent walking in the dark by blind-folding your eyes. It is far more difficult to move properly blindfolded than even in pitch dark, probably for psychological reasons.

Even on the darkest night your eyes are able to help by picking up the faintest clues as to your whereabouts.

- (e) It is as important to watch the other students using the course as to use it yourself.

At night students are trained to distinguish what surface a man is walking on by the sound of his movements. They have to listen at various distances, and to report on what they think they have heard in minute detail, the whole point of all these exercises being to train the faculty of hearing, and also the sense of touch in various parts of our bodies, faculties which are not called into use very often in normal life, but which exist in all of us if only we take the trouble to bring them out by training.*

7. **Watch out for Animals.** Do not forget that you are not the only source from which the enemy's ears may obtain information of your whereabouts. In the same way practise observing the way birds and animals behave when human beings approach them. It may some day give you valuable information as to the whereabouts of hidden Nazis.

Nearly every animal reacts to the presence of human

* See Note 2, p. 168.

beings. If cows in a field stop eating and face the same way, staring in the same direction, you may be quite certain that somebody is moving there. At the Burwash Fieldcraft School we always try to send silent patrols along hedges where cows are grazing, so as to illustrate this point.

The behaviour of wood-pigeons, magpies, jays, make secret passing through small woods impossible. It is as well to know the distance at which these and other living beings respond to disturbance. A blackbird will get up and chatter when anyone is within 100 yards of it. It will not leave its nest until you or the enemy have got as close as this. Blackbirds usually leave their nests silently, they do not chatter until they are some distance from the nest, and then the chatter is intended to mislead the intruder away from the nest. The blackbird takes care to be as obvious as possible with its chattering, and you can often get some idea as to the direction in which the intruder is approaching from observing this fact.

The cock pheasant will get up when the intruder is much further away, often as much as 400 yards. If a bird gets up in a wood because it has been disturbed by you, it will probably come to rest again somewhere ahead of you. If you now remain absolutely still, the presence of an unseen enemy may be revealed to you by the bird flying back again towards you because it has been disturbed a second time, and this time by an enemy advancing from the opposite direction.

Lapwings are valuable indicators, as they will reveal anyone moving near their nest by pretending to have a broken wing and with loud cries attracting attention away from the nest and to another part of the field. The lapwing is thus liable to be dangerous either to you or to your enemy.

In order to detect unusual sounds, it is necessary to become familiar with the normal sounds of the English countryside. Here you will have a great advantage over the invader, an advantage which you can turn to practical

use by using bird calls as signals; provided this is done with care the Nazi, not being as familiar as you are with what sounds he should expect, will be unlikely to detect your artificial addition to the woodland noises.

8. Freezing up. One of the most difficult things for people to remember is that when they are not moving they should be absolutely motionless. The only way to get this well into your mind is to watch your comrades on any exercise that you do, and then to watch a cat waiting at a mousehole. You will then see the difference between a human being not very good at fieldcraft, and an animal perfect at it.

When the anti-parachutist section dashes down to try and destroy the parachutists or fire into their cylinder, they will choose, as we have seen, a route which brings them up in good cover from which to fire. When they have reached their cover, they will crawl silently and carefully to whatever position they may select. By practising, as described in paragraph 6, they will reach their position unobserved, that is to say, the Nazis will probably know that they are somewhere within a given area, but they will not know the exact spot.

On such an occasion, and on many other occasions when you have to lie out in the countryside waiting for your chance, you must first by an effort of will, later more easily by practice, and finally by instinct, turn yourself into a cat over a mousehole. Until you have learned to do this, you will fidget. You will scratch a fly from behind your ear, you will finger your gun, you will turn your head from side to side unnecessarily, you will adjust your equipment as if you were going to have a photograph taken, you will find the position you have got into not as comfortable as you thought at first, and begin shifting into a new one, you will decide that if you move your foot to the right you will get an even better view.

These are the fatal mistakes which cats never make. Any one of these movements may cost you your life.

Provided you have got the bare minimum of natural cover, you are safe so long as you are absolutely still. The movement of your head from side to side is quite enough to give you away.

You should concentrate on getting skilled in remaining motionless at all possible times, when you are on duty at a post is an excellent opportunity. Remember that this freezing-up is quite different from standing to attention. There should be nothing strained about it. You should waste no energy moving, partly because movement gives you away to the enemy, and partly because by having your body in complete inaction, all your power can be concentrated upon the three things absolutely necessary, thinking, seeing and hearing.

I have noticed at the Fieldcraft School that it is an almost certain test of whether a man is well-trained if he stops still or fidgets about when he is getting orders or having a job explained to him. Fidgety movements are a sign of lack of concentration.

The well-trained Home Guard or regular soldier does not stand stiffly, nor does he move about when an exercise is being explained to him. He makes you feel that his body is reposing while his mind is active. This is very important for you to learn, because every part of you that is not being used at a given moment should be resting. Then you will be able to take the strain when it comes.

Learning to be motionless is therefore important for two reasons, first so as not to give your position away to the enemy, second so as to concentrate and rest at the same time.

SECTION V

HOW TO USE NATURAL COVER

What makes a Man Conspicuous? The most unwarlike sight in the world is a sentry outside Buckingham Palace, especially as sentry duties are done in the cheerful atmosphere of peacetime. Until we realize that fact, we cannot begin to approach the problem of modern military efficiency.

What *we* have to do is to find out how we can become an inconspicuous part of the landscape rather than a good mark for the enemy.*

To do this we must learn what makes a man conspicuous in the landscape, and how to avoid it. Many people imagine that this is a question of colour, but although it is perfectly true that it is the redness of a poppy which makes us see it amid green or brown grass, colour is not the most important matter. We can put the whole thing in one sentence: An object is conspicuous in the landscape if it reflects a great deal more light, or less light, than most of the things surrounding it.

Let us take extreme examples. A piece of glass reflecting the sun shines out so brightly that it at once rivets our attention. It is far brighter than anything round about it.

The dark shadow of a tree falling on a sunlit field is very obvious indeed. That shadow, by the way, is probably not black, as most people think, but may be blue or green or brown, according to light effects. The reason why it is conspicuous is because the shadow is simply that part of the ground near the tree which has had the light cut off from it, and therefore reflects back far less light than its surroundings.

In the same way, you will be conspicuous to your enemy

* See Note 3, p. 168.

if your tone, that is, the amount of light you reflect, is much lighter or darker than the tone of the country across which you are moving.

2. Some Points about Tone. Everything, including your khaki uniform, changes its tone according to the amount of light that falls upon it.

For example, on a dark overcast day everything may become very nearly the same tone. The pane of glass which was very conspicuous when the sun was reflected off it becomes inconspicuous in the dark and shadowy landscape. Moreover, the tone of objects depends to a certain extent upon the distance at which you observe them.

Try to look at a piece of landscape with grass in the foreground where you are standing, and grass on a hill at some distance. The grass in both cases is green, and the same grass in every way, but the grass on the hill in the distance looks far lighter than the grass upon which you are standing, because distance has the effect of lightening the tones of things.

Now just as the grass in the distance looks lighter, so, too, would a man in khaki of exactly the same colour as your own look lighter if he were standing on that distant grass. That is why one must avoid standing in such a way that one is silhouetted against a background more distant than the piece of ground upon which one is standing. If the ground in front is darker than the ground behind in its tone, then you will be darker also, and you will stand up dark against the light background, and be shot by the first Nazi who notices you.

It is very important to consider this, because it brings us to a vital point in fieldcraft. Cover is not necessarily something between you and the enemy, like a hedge or a wall. It may just as well be something behind you, for whether you can be seen approaching or not depends chiefly on your background.

In order to see how important this is, it is necessary to stage a demonstration. The object of this demonstration is to give people a chance of seeing how they look to the enemy when they are advancing over the countryside, and how they must think of their background if they are to remain inconspicuous.

3. This is how we carry out the Demonstration at the Burwash Fieldcraft School. We choose a piece of ground looking over a small valley to a hill on the same level as we stand. Opposite at a distance of 2,200 yards there is a high thick hedge. Standing well in the hedge but with no foliage to hide them are five demonstrators, with steel helmets, respirators and rifles. The students are directed to look at the hedge. They cannot see the demonstrators. Why? Because the tone of shadow in the hedge conceals them. They blend absolutely with their background.

I flag them. They march from the hedge into the field. Immediately they become visible, if the sun is shining from our side of the hedge, but they remain invisible longer if the sun is behind the hedge because of the shadow cast forward into the field.

When they are free of shadow they are visible, not before. That is, when you see them against the light green of the field they show up as a dark moving stick. *You* look like that at 2,200 yards. Not a body with arms and legs but a darker tone contrasted with the lighter tone of the background.

Notice that it is not so much *colour* as *tone* which counts.

I flag them again. They stand still. The students consider the points I have just made—hedge and shadow made them invisible; light tone of field made them visible as a darker tone against it.

I flag them again. They kneel down. They are now a mark only half the size they were, yet they are just as visible. Note that—the difference between being in front of a

shadowy hedge and being against the light green of a field is more important in its effect on your visibility than the size—standing, kneeling—of the target which you present to the enemy at this distance.

I flag again. The demonstrators lie down in a firing position. (N.B. It is a good thing for demonstrators to take up firing positions in all these exercises, it is more realistic.)

Even lying down, the demonstrators are just about as visible as standing up. Why? Partly because as we have said the tone contrast is more important than the actual target size, and also because they are on a steep sloping hill. *Moral*: Don't imagine that lying down will in all circumstances reduce your visibility. If you lie out on the wrong sort of slope you will give yourself away to the enemy just as surely as if you stand up.

I flag again. The demonstrators approach at the double until they disappear in a fold at the bottom of the field. At this point we break off the exercise to allow the demonstrators to reappear at a closer point and we fill in the time with something else. . . .

The demonstrators have got to their new positions. They are somewhere between us and the place where we saw them disappear. There is no cover between them and us. The students look for them, think they see them. But their suggestions turn out to be tree stumps, cows, piles of straw.

I flag them. They rise up from a dark patch in a field 500 yards nearer than they were. The dark patch was the remains of a dung heap. They harmonized perfectly with its tone and were invisible to us as a result.

Now we see them approaching at approximately 1,500 yards. They are still dark moving tones against a lighter toned field. We do not see legs move, nor arms, nor distinguish faces.

They reach the bottom of the field, and pass out of sight

behind the hedge. Evidently they are hiding behind it as they are quite invisible. I flag them to climb over. Suddenly they appear in the field in front. They had been kneeling in front of, not behind, the hedge and once more they were invisible because of their background, not because of anything in front of them.

They are now in a field at about 1,200 yards. Though they have moved 1,000 yards from the start they are really not much more visible than at the beginning of the demonstration. The fact that they are now 1,000 yards nearer does not exercise much effect on their visibility. The contrast between the tone of their uniforms and the tone of their background is still the same and therefore their conspicuousness has scarcely changed.

We still do not see their limbs as they double off the field and out of sight.

That is the end of the demonstration. What did it teach us? Sometimes we could see the demonstrators and sometimes not. It depended not on anything between us and them, but on their background. When it was of much the same tone as their uniforms they disappeared.

4. Practise your Backgrounds. Every Home Guard should now practise putting himself in front of the right kind of background. He should constantly say: "How do I look now?" He should constantly watch other Home Guards in various positions until the simple matter of how to choose a good background becomes second nature.

Compare men in the following positions:

- (a) Standing silhouetted against the sky.
- (b) Standing against a more distant hill.
- (c) Standing up in front of trees.
- (d) Standing in the shadow of trees or bushes.

All this seems too simple, perhaps. It is not. It helps us to get the habit of being self-conscious, of thinking how we look to an enemy. Only when we have got so far can

we grasp the first rule of fieldcraft, and know the sort of route along which to march or to bring others so that they shall be inconspicuous. *It depends on blending with the background.*

Special practice should also be carried out in the use of shadow, e.g. the shadow of a room. Compare a man standing up to a window, and a man standing four feet back from the window.

5. **Through Nazi Fieldglasses.** But now there comes a new difficulty. The demonstration showed us how we look and how we can remain inconspicuous at distances of 1,500 to 2,000 yards. *How we look to the naked eye.* But Nazis have, and use, fieldglasses. To realize what we would look like to the Nazis we proceed to a second demonstration.

Nazi fieldglasses magnify eight times. That is the same as reducing distances to one-third. At our Fieldcraft School we therefore repeat the first demonstration but over distances one-third the previous ones. You cannot, of course, get exactly the same light or natural features but you can get close enough for the purpose.

The demonstrators are ranged up in front of a hedge about 300 yards away. They stand well into the hedge, but without foliage hiding them. They can now be said to look much as they would at 900 yards through Nazi glasses. Actually they are a good deal more conspicuous, but the resemblance is close enough.

One or two of the demonstrators are still almost invisible where they are helped by strong shadow, but the position of three is quite obvious. They can be seen. But look again. Not all of their bodies can be seen. Look again. That bright object is not a whole man; it is only part of a man. It is, in fact, his respirator case shining out like a headlight. This is important, since it means that a man's position may be given away to the enemy not by the whole of him, but by one part of his equipment.

I flag the demonstrators. They step out from their hedge and at once become clearly visible. But even now it is not all of them that is equally noticeable. The respirator case and above it the steel helmet. These are the two parts which catch the eye, and after them the face. If these three things were as inconspicuous as the rest of the body the approaching man would be a much poorer mark. If it is a day of alternating sun and cloud you will be surprised how the helmet and face and respirator seem to flash out with every return of sun and half disappear when the cloud-shadow is thick.

6. **The Danger Points in our Equipment.** Why is the respirator case so visible? Because it is made of lighter material than the uniform, because it is rather more shiny, because it stands out from any shadow cast by the helmet and therefore catches and reflects more light.

Why is a steel helmet so visible? For three reasons, because it is shiny, because it is a very solid shape (and nothing in nature has a solid unbroken shape) and because its rims, especially at the sides, are most conspicuous. (N.B. Our Military Intelligence in Crete reported that Nazi prisoners all said our men gave away their positions from the air by their badly camouflaged steel helmets. What better reason could be found for our considering the visibility of our helmets?)

Why is the human face so visible? Because of its paleness. Note that if fifty men are marching together and an enemy plane passes overhead the men are likely to pass unnoticed, *provided they do not look up at the plane.* Fifty pale faces turned upwards is just like waving a flag in front of the enemy.

I flag the men on and as they move we now notice two bright objects moving on either side of each. They are their hands—another danger spot.

I flag the men to kneel, lie down, advance at the double.

(About this last, remember that to be realistic they must only cover one-third the ground they would normally do, as each yard represents eight brought closer through field-glasses.)

The demonstrators now reach a second hedge about 150 yards away. Once more they stand in front of it. Even now the shadow is sufficient to hide everything except their respirators, their helmets, their faces. *If these could be altered* a man standing in a hedge 150 yards away would be, if not invisible, at least inconspicuous. How must we alter them? We must make them fit into the pattern of their surroundings. We must tone them down if they are too light, for example.

7. **The Proof of the Pudding.** And now here is a snag. In every group of students that come to the Field-craft School there are sure to be several who are certain that they have "camouflaged" their steel helmets. They have darkened them sometimes with black paint containing sand, sometimes with a covering of sacking. If you have a helmet like this in your group see that its owner takes part in the second demonstration. Does his steel helmet appear inconspicuous as he approaches? It does not. Instead of approaching with a bright basin on his head shining in the light, the wearer approaches as if he were wearing an equally conspicuous dark mushroom.

There are two morals to that: First to darken an object like a face, a helmet, a respirator case, is not necessarily to conceal it. To prove that get a comrade to lie out in a field. Look at his black boots. Are they inconspicuous?

Second moral: The only way to know if a piece of camouflage is correct is to test it. Does it make the object inconspicuous? If not, it is not camouflaged. That means that most of the helmets, motor cars, lorries, pillboxes supposed to be camouflaged are not camouflaged at all. Don't be misled. The proof of the pudding . . .

We shall return to the consideration of these problems in the next section, where we deal with artificial cover and camouflage. It would, however, be a great mistake to imagine that because you are going to learn to conceal yourself skilfully you should not take pains to practise the art of making the best use of all the natural cover in your neighbourhood. We shall therefore now consider what steps you must take to be quite certain that you are prepared in this particular.

8. **Study Natural Cover Now.** Get a 6-inch Ordnance Survey Map and draw a circle of six inches radius round the action station which you will have to defend when the invasion comes. This represents a mile in every direction from your defended position, and if you are to be fully prepared to deal with Nazi airborne troops in this area, you should now make a detailed examination of the natural cover that exists in this area.

You should particularly know what cover exists along all the routes which lead between any two points within this area. In most types of country there are footpaths wherever there is a useful route. You should not only have gone by day and by night, by winter and by summer, along all these footpaths, but you should have done so, bearing the following points in mind.

9. **What about the Hedges?** Hedges are of several different kinds, each one offering different problems for both the attack and the defence. You must examine the hedges in your district, and make a note as to which of the following types they belong to:

- (a) Plain hedges (thorn or otherwise) without any ditch or bank. These hedges are useful, provided the enemy have not seen you. They offer cover from view but not from fire.

If most of the hedges in your locality are of this type, it becomes more important than ever not to give

your position away to any parachutist or other enemy unit which you desire to observe or dispose of.

If the enemy has seen you, the hedge may be a death-trap, since he will be armed with rapid automatic fire, to which you cannot reply. Thus, these hedges are often favourable to the enemy, because you will not possess rapid automatic fire, and will find it hard to dislodge him from behind a long unbroken hedge with small arms or musketry, and once he has occupied the other side of the hedge he can fire at you if you break cover, with almost as much security as if he was behind real cover from fire.

- (b) A hedge on a bank with ditch on one side. You should know every hedge of this type, and particularly note on which side the ditch lies, for, if you have to engage an enemy beyond the hedge on the side away from the ditch, this hedge will offer you the best possible cover. You will be able to occupy the ditch, and fire over the bank, and the hedge, even if it is a very poor one, will give additional cover.

But, if the enemy is on the same side as the ditch, and knows of your presence, this hedge will prove a death-trap. There will be no protection from his rapid fire and, if he forces you to retreat, he will probably be able to advance into the ditch, and establish himself before you can get cover in the next field.

Your best chance will be to advance through the hedge and occupy the ditch, if you can do so, before the enemy gets your range with machine-gun or other automatic fire.

- (c) Fences, consisting of a few hedgerow trees, a steep side-ditch, often containing water, a three-foot bank beyond, offering no cover to you as you approach it, although excellent cover when you reach it.

Such a field boundary may be very useful, if you

can reach it from one flank rather than from behind. You must note, therefore, the approaches at both ends for future use.

10. How to Examine Local Hedges. You should examine all hedges, fences, field partitions, etc., in your neighbourhood, and ask yourself the following questions:

- (a) Does this hedge give me cover from view from the enemy?
- (b) Does it give me cover from fire?
- (c) Can I approach it unseen?
- (d) Can I approach it from one or other end?
- (e) Can I get through it quickly?
- (f) Can the enemy trap me?
- (g) What advantage will it give to the enemy:
 - (i) If he does not know of my presence?
 - (ii) If he knows of my presence?

Always be careful to consider each hedge from both sides and directions. Do not make the mistake of imagining that you will be on the favourable side from your point of view, and the enemy on the other.

Don't forget the effect of seasons on hedges; good cover from view in summer may be bad cover from view in winter.

Don't forget that a hedge, which is so thin that you can see through it when you are close behind it, may be perfectly good cover from view from an enemy looking at it a mile away.

11. Walls and Waterways. There are, of course, parts of England where walls take the place of hedges and ditches. The ordinary wall is not likely to be strong enough to hold up even the lightest tank, and its value is solely as cover.

Exercises and observations suggested for hedges hold good for walls. Walls exist in parts of the country where stone is common; therefore there will usually be plenty of material lying around to strengthen vital places.

In some parts of Britain (e.g. the Fenlands) fields are bounded by deep ditches full of water and there are drainage channels at frequent intervals. These are admirable obstacles especially if strengthened with barbed wire. You should seek opportunities of enfilading the enemy from cover at such points.

12. Woods. Britain is not a forest-covered country; but it has large numbers of small woods of great tactical importance. Woods are always avoided by large armies, because they destroy contact and communications between one unit and another. But they are valuable to small squads of men working by themselves, and are particularly likely to be used by parachutists or small groups dropped from transport planes to screen their movements, if they find their progress held up on the roads. Exercises must, therefore, be done in tracking and hiding in woods.

Woods may be very important, if they are by the side of a road at a point where you may desire to build a road block. If you succeed in stopping the enemy on the road, he will almost certainly take to the wood, and in such a case the proper place to stop him is at the edge. Once he has got right into the wood it will be more difficult for small numbers to fight him. Therefore, the edges of all woods adjoining roads at such points should be defended, and also obstructed, either with barbed-wire or with felled trees.

It is a rule of war that the proper place for defending a wood is on the edge nearest the enemy, other things being equal. If there is a fairly wide drive or open space the whole length of a wood, the farther edge of this may be the most suitable spot. Since woods properly defended are the most difficult positions to attack successfully, the enemy is always likely to try to get round the edges of a defended wood. It will be no use for you to be waiting for him somewhere within the wood, if he rapidly moves along its edge, and advances round the corner, without taking any notice of you.

One of the most likely jobs that the Home Guard will have to do, and one of the most difficult, is to clear a small pocket of Germans out of a wood. This needs the most careful tactical training. There is a battle drill for the clearing of woods in the training of the Army and we shall adopt it for the Home Guard to use. The whole question is rather too detailed to be described in this Manual of Fieldcraft.

13. Country Roads. The most noteworthy feature of our English roads is that almost all of them have a hedge, or fences and a ditch on both sides. Many have a high bank. Most of them have sharp corners.

You must note these features on every road in your district. They are important, because they offer a magnificent opportunity for defence. They mean that nearly all roads in England are "defiles" in the technical military sense.

An attacking force, having to use a defile, whether it is an English country road or a pass through rocky mountains, or a narrow causeway between waters, is at a great disadvantage. He cannot spread out his forces over the countryside; he cannot find an alternative route by leaving the road, supposing he finds himself blocked by opposition ahead. If he has to turn round and retreat, especially in these days of mechanized transport, he is bound to fall into disorder. Skilful defence can smash him on the flanks as well as ahead, and surprise him in the rear.

It is hard to imagine anything less comfortable than a small column of invading Nazi tanks or motor-cycles moving down an English country road, if the local inhabitants have taken the fullest advantage of the opportunities nature has given them for upsetting the attacking forces.

14. How to Examine Local Roads. Examine the roads in your neighbourhood, and find out the answer to the questions about every few hundred yards of them.

At what points can the enemy leave the road and use the country on either side?

At what points can units of the Home Guard be hidden while the enemy passes, so as to trap him in the rear?

At what points must the enemy advance (always through completely unknown country) without being able to see what lies ahead of him?

At what points are there ideal positions for holding up, trapping and destroying the enemy?

An ideal position will be one in which there is a narrow bridge over a stream ahead, or a section of the road between very high banks, preferably hidden from the enemy until the last moment by a corner; where both sides of the road are so flanked with hedges, ditches and banks that it will be hard for the enemy to get off the road; where there is a suitable place to ambush him from the rear by a force lying in wait under cover until he has passed.

There is a further factor, which will add to the value of a road position. It should be screened from the air, and this is most likely to be the case if there are trees or, failing that, buildings casting a shadow across the road.

15. Fields. You must remember that cultivated fields change their colour, and therefore their importance to you and the enemy, with the seasons of the year.

It is a different problem to take cover while crossing a ploughed field, from taking cover when that same field has a low growth of winter oats on it, or when it is covered with a ripe crop of wheat.

You must practise the rules of taking cover at all seasons of the year, because only by experience can you realize the importance of the seasonal changes in your own locality.

You must also observe your fields to see whether they lie in such a way as to give yourself and the enemy good or bad visibility. Quite often a stretch of country consisting of nothing but large fields surrounded by hedges will nevertheless appear almost thickly wooded, because in every hedge-row there will be one or two hedgerow trees so that the

effect of a dozen or more hedges one behind the other, each with its quota of a few trees, will be to turn the landscape into a wood. The same landscape, however, will appear quite open and almost treeless, if seen from a nearby hilltop.

If you are on a hill, you will be able to follow the movement of the parachutist, because you will be able to see a great deal of the ground between each hedge; but the parachutist will have the feeling that he is in wooded country with poor visibility, because he is right down on the level of many rows of hedges. This gives you a real advantage, and deceives him with a false advantage, because you will be able to see a great deal of his movements, and he will imagine that you are not able to see anything at all.

You should, therefore, note the spots in your locality which, thanks to suitable rises of ground, help the country to open up, and therefore improve your field of vision.

And, in case of parachutists having landed, care should be taken to send an observer to such a spot to help the party of searchers who, being on the same level with the parachutists, will be less able to spot him as he crosses fields.

16. Streams. Although England has few large rivers she is blessed with innumerable small streams. These will be the chief line of defence against any invading tanks or mechanized units. Quite small streams will stop a tank, especially if the banks are perpendicular and several feet high. This is why roads over bridges offer perfect points for road blocks.*

You must know the general details of the streams in your neighbourhood, paying particular attention:

- (a) To bridges over them;
- (b) To the state of their banks;
- (c) To places where they can be forded.

However well equipped with maps the invaders may be, they cannot possibly know all these details, and therefore

* See Note 4, p. 169.

the advantage will be entirely with you, provided you have been careful to study them beforehand.

17. Why this Knowledge is Important. The English countryside calls for self-reliance, an ability to act on one's own on the part of every single member of the Home Guard. You cannot, therefore, afford to leave this knowledge to your Company, Platoon, or Section Leaders. Once you are called into action the chance is ten to one that you will be isolated, and have to make your own decisions. The more you know, the more you will be able to harass the enemy.

It is also your duty to prepare yourself with detailed knowledge of the countryside, because it is quite possible that, should the invaders pass through your locality, their numbers will be larger than the defence.

The defenders must, therefore, have as few casualties as possible, and nothing will reduce casualties so effectively as detailed knowledge of the natural advantages about you.

The final reason why you must study the nature of your countryside is that you may be called upon to act as guide to military operating in your locality.

You are not expected to enter into prolonged military operations against large forces of invaders; but to equip yourself to co-operate with military fighting in your locality, and by understanding the natural advantages of your own locality you will become invaluable as a guide to the military when the time comes.

18. Knowing cover when you see it. It is very important to learn to recognize cover, and particularly to realize how very little cover is often sufficient, and how much of this bare minimum cover exists.

For this purpose we use at the Fieldcraft School the 100 yards course described in the last section. Along the edges of the sections of this course there are boards and pieces of wattle fencing, as well as specially prepared little hedges.

These are of different heights, and students have to move behind them in such a way that whatever the height they are concealed.

Two things stand out, first that a very low piece of cover providing it is really sufficient and has no gaps in it, for example, a 6-inch wide board, is better than a tall but ragged hedge 5 feet or 6 feet high. Second, that the common habit of an untrained man trying to be careful, namely of walking along with his head bent forward, almost never gives him better cover than he would have if he walked upright.

Here are some simple exercises which will help you to select cover, and fit your movements suitably to it.

18. How to Move Behind a Hedge. Choose a suitable gap, for example, a wide gate, and make a screen of old sacks with a piece of string threaded through the top in such a way that two men standing by the gateposts can progressively lower it to any height required. Have it held at 5 feet 6 inches, and tell people to move behind it, using it as cover. If people move along in the human ostrich position, with the head ducked down in front, they will almost certainly be seen. The reason is that when people use this method of keeping behind a hedge, the natural instinct is only to duck sufficiently for their vision to be obscured by the top of the hedge. As the top of their tin hat is above their eyes, they usually forget to conceal this.

Moreover, as they move along they will bob up and down, and sooner or later bob up above the hedge. Also, it is a very bad position for seeing what you are coming to in front, especially if all the time you are looking towards the top of the hedge to see that you are keeping just low enough to be covered by it, and it is a bad position also from the point of view of picking your steps silently; in fact, there is nothing to recommend it.

Even if you have 5 feet 6 inches of cover, you will be wise, therefore, to get down lower into the position recommended

above as the best for keeping your balance for the purpose of silent walking. There should be no compromise between this position and walking bolt upright. You will know that you are well down below the top of your cover, and you will therefore not be tempted to look to the side every now and then so as to make sure. You will, in fact, be able to forget all about the cover, because you will have settled that problem, and will be able to concentrate upon getting to the position you want to in front and upon moving quietly and rapidly. Movement in this position is scarcely more tiring than walking upright, and you can get along at almost any pace you want, short of a sprint. Also, if it is wise to come to a standstill suddenly, so as to see what ought to be done next, you can freeze up much more rapidly than if you have to sink down from the stooping position.

Finally, if an enemy spots you and knows that you are advancing behind the hedge, and sprays the hedge with machine-gun fire, his tendency will be to shoot towards the upper third of the hedge and if you are well down he will miss you altogether.

These points can be demonstrated behind our 5 feet 6 inch screen of sacking, but they should be practised behind real hedges and walls.

I have suggested 5 feet 6 inches as a proper height for this part of the demonstration. Doubtless I have been influenced by the fact that I am myself tall, and it is probable that many men would get along in safety behind 5 feet 6 inches of cover by simply stooping into the human ostrich position.

It would therefore be better to demonstrate, for men under 5 feet 9 inches, with rather less than 5 feet of cover. In any case, you should bear in mind that there are precious few hedges so even in thickness and height as to afford a steady 5 feet 6 inches of cover throughout their whole length, and you should watch out for the lower parts of the gaps.

19. How to Move Behind a Low Bank. The next step is to lower the screen of sacking to about 3 feet. In order to get rapidly behind cover of this height, it is advisable to adopt the monkey walk. Face the cover and sink to your hands. Secure your rifle and other equipment so that they will not rattle or trip you, and move sideways in the direction you wish to travel by jumping both your feet first and then following with your hands, being very careful not to bob up and down.

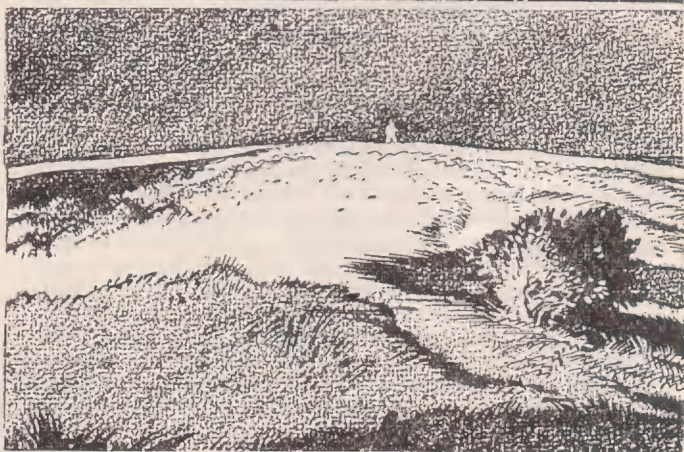
In any movement which involves using your hands, an important detail is this: If you are advancing through undergrowth where there are likely to be thorns, do as the poacher does, and crawl on your fists, also keep your knees off the ground. This reduces the chances of unpleasant minor wounds. If you are using your hands on rough hard ground, however, use the palm of your hands, which are far less likely to be bruised by stones.

Three feet of cover is about the lowest behind which you can hope to move with any rapidity. The monkey walk can be done at quite a pace, but you should pause every few yards to survey the country ahead, and whenever possible you should get off your hands so as to rest your arms.

The next stage is to lower the screen to 2 feet. This involves really crawling, but only on hands and legs, the body can still be lifted off the ground. With this amount of cover the crawl should be on the side of one leg, and the rifle can be carried by placing the sling round the knee of this leg and laying the weapon along the upper and inner side of the thigh. Quite a good pace can be maintained, but movement now becomes more tiring, and you should certainly avoid long stretches of so little cover as this.

You should practise using either thigh for this crawl, so that you can always face the cover, and you will of course pause frequently to examine the country ahead of you.

In the illustrated supplement which follows we see men making the sort of mistakes which you may very well make



FIGS. 9 and 10.



FIGS. 11 and 12.



FIGS. 13 and 14.



FIGS. 15 and 16.

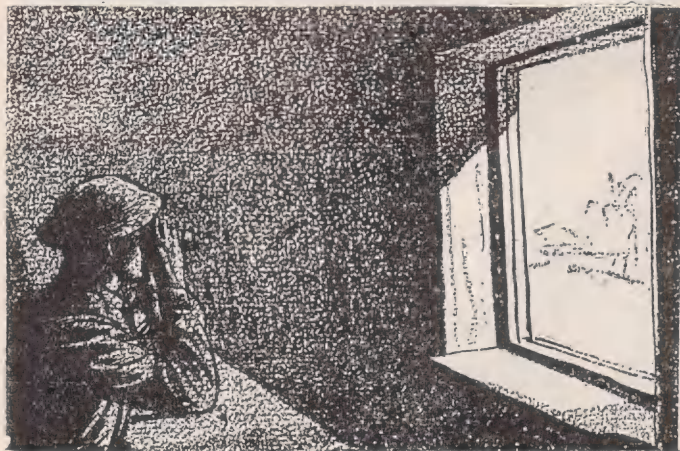
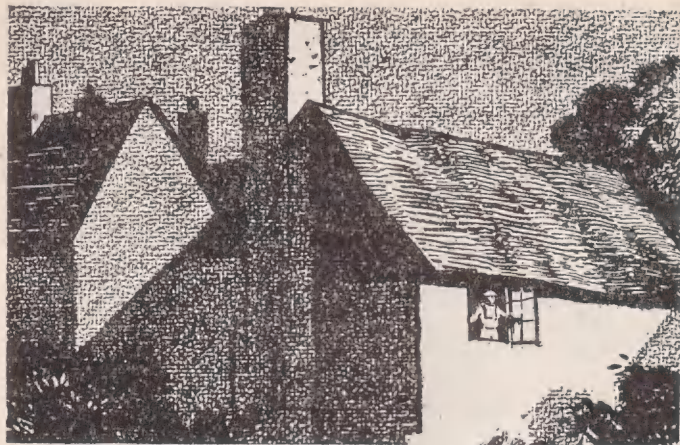
yourself if you do not get into the habit of thinking about how you are looking to the enemy, and particularly how you are fitting in against your background.

(9 and 10.) These show the danger of standing up against the skyline. Sometimes the skyline will be lighter than the foreground, and you as part of the foreground will be darker against the light sky. Sometimes the foreground will be in light, and the sky will be dark and threatening. You as part of the foreground will have the sun shining on you also, and will stand up against the dark sky.

(11 and 12.) Do not make the mistake of supposing that the danger is simply the sky itself. In these two pictures you see what happens when a man is silhouetted on top of a ridge, with a background of a different tone behind him. You must regard any such position as being just as dangerous as a position which silhouettes you against the sky. Always remember that more distant parts of the landscape are likely to be in a different tone from the piece of the landscape of which you are an actual part, and therefore that you must avoid ridges which are the dividing line between two different tones.

(13 and 14.) These two pictures both illustrate a danger and give you a practical tip. The man knows that the ground is rising behind him, and he therefore, having glanced round and seen this, imagines that he is safe from being a silhouette. So he is at eye level. But the second picture shows you what he looks like to a man crawling towards him. Always choose your position so that you are not silhouetted to the enemy, however near the ground the enemy's eyes may be. Also remember that sometimes you get a better view of your enemy by observing from near ground level. This is true even in day-time, but at night it is of course the rule. The only possible hope of seeing a man on a dark night is to get him silhouetted against the sky. You will have to stoop close to the earth to do this.

(15.) Shadow is excellent concealment. If this man had



FIGS. 17 and 18.

been lying well in the shadow of the tree he would be quite invisible. See that you always remain part of the shadow which you are using. Do not allow yourself, when in shadow, to be silhouetted against a light background. If you look carefully you will notice that there is a second man right up against the tree trunk. He is hard to see, although the shadow there is not really quite as deep, but he and the background against which he is visible are of the same tone.

(16.) Shadow can help you, but shadow can give you away. In this picture you see an example. The man is approaching the enemy position from round a corner, and he is quite right to do so, but unfortunately his shadow is not taking cover as well as he himself.

(17.) This house has the sun shining full on its exterior wall. The rooms inside are deep in shadow. The man who stands up to the window like this is making himself part of the outside wall, and is brilliantly lit up by the sun and made more conspicuous by reason of the framing of dark shadow round him.

(18.) If, instead of standing up to the window, he had sat back at a table within the shadow of the room, he would have been able to see as well and to shoot as well, but he would have been quite invisible to any advancing enemy. Just one more example of the need of using shadow correctly and turning it into an aid instead of allowing it to be a danger.

20. How to Move in a Fold in the Ground. The screen is now reduced to 12 inches high. Crawling must now be done face down on both knees, and great care must be taken not to rest either the head or the buttocks more than an inch or so off the ground as you move. The elbows support most of the weight of the body in front, and the knees kept apart and moved up sideways one after the other support the rest of the weight.

Practice will make it possible for you to negotiate twenty

or thirty yards in this way, relying upon nothing but a fold in the ground. A sunken road, a cart track, a ploughed field, a drain by the side of the road, even fairly long grass, will afford enough cover for the practised man.

There is one point, however, to bear in mind about crawling, especially in long grass. It makes extremely obvious tracks.

It should therefore be avoided whenever there is any chance of enemy aeroplanes being able to use the information thus given away.

21. How to Use the Least Scrap of Cover. Finally, the screen is lowered to 6 inches. It is now a question of crawling with both arms stretched out in front, the nose and chin practically grazing the ground and propulsion being effected by the fingers and the toes. This is slow and extremely tiring, but it can be done. It is most satisfactory when you have got to get across an open space with a very gradual slope upwards in the direction of your enemy. If you move slowly and the enemy is not on the look-out, you will get by, and even if the enemy sees you from fifty yards away or so, you will offer a very poor target. Supposing he sees your head. If he aims at it, he will almost certainly shoot high. If he compensates for this and shoots into the cover between you and him, hoping that the bullet will penetrate the cover and reach you, he will probably strike the ground fifteen or twenty feet in front of you, and the bullet will either stop in the ground or ricochet upwards.

Naturally, one does not move for preference with only 6 inches of cover, but it is very well worth while practising, so as to be on the look-out always for the unsuspected minimum, the little fold in the ground, the irregularity in the ploughed field or whatever it may be that at a pinch may save your life.

Naturally, too, moving across the open behind 6 inches only of cover with the knowledge that the enemy is

somewhere on the look out is a nerve-racking job, particularly so if he actually opens fire, and it would be very easy to lose your head in these conditions.

Once you have decided to take the risk, you must go on, and not succumb to the instinct to cut and run. Obviously you will be a casualty if you get up, and you must resign yourself to slowly finishing your crawl. Any attempt at speed will be fatal.

Naturally, too, you will not attempt such a crawl without seeing to it that your comrades are able to give you covering fire, and thus to prevent the enemy advancing towards you, when you will certainly be at his mercy, as you will not have time to make use of your weapons.

It is difficult to describe these movements in words, and every Home Guard is advised to see an expert do them. Having done so, he must practise the movements himself, and practise being able to spot the least amount of cover in what at first sight seems hopelessly open territory.

SECTION VI

PERSONAL CONCEALMENT AND CAMOUFLAGE

If you have seen the demonstrations described in Section IV, you will know that the danger points which are likely to give away your position to the enemy are the steel helmet, the face, the respirator case, the hands, and the black boots. The Home Guard must therefore learn how to conceal these with personal camouflage, and this section will be devoted to practical instruction in how to do this.

1. How to conceal the Steel Helmet. First take a look at any number of so-called camouflaged steel helmets. There are many about that have been painted with a dull dark green paint, and their owners imagine that they are successfully concealed, because the shine has gone out of the helmet. Many more have now been covered with a regulation dark green netting, again to destroy the shine of the original surface.

Do not be satisfied that a helmet is concealed, unless it stands up to the one and only test, namely, that it is really inconspicuous when seen from a short distance in open country.

The reason why most concealment of steel helmets is so unsuccessful is that the shininess is only one danger. The helmet presents us with three problems, all of which must be solved: (a) it is smooth and reflects light; (b) it has a solid, unmistakable shape unlike any natural object; (c) its rims, especially at the side of the head, are very conspicuous.

A steel helmet is not properly camouflaged unless all three of these defects have been surmounted. This cannot be

done either by painting it a dull colour, or by enclosing it in a piece of sacking, or by simply putting a dark net over it. Such methods may deal with the shine, but they do not touch the other two characteristics. The following is the most practical method for the Home Guard. It has the advantage of not requiring any equipment served out from the War Office. Any Home Guard can make the necessary equipment.

Cut two strips of tin an inch wide and an inch and a half long; bend them into a flat S-shape, so that the lower curve of the S fits tight over the rim of the helmet above the ears. Get a worn-out inner tube of a motor-car tyre, and cut rubber rings about a third of an inch wide from it. Take one of the rubber rings and fix it on to the helmet by means of the upper curve of the two bits of tin. Stretch the rubber ring over the brim of the hat, so that it lies in front and at the back fairly near the edge.

This ring can be used to fix bits of weed, grass, or tree branches (if you use bracken be very careful and test the invisibility of the result in the place you are going to use your helmet). Some of the garnishing should be fixed through the ring in front, brought over the top of the helmet, and fixed in the ring at the back. This will break the solidity of the helmet when seen from above. It will not matter that some of the helmet will shine through, so long as the surface is well broken by these weeds. Some more weeds should be fixed in front so as to hang down over the upper half of the face, and others must be fixed at the side to hang down over the shoulder, taking great care not to do this symmetrically on both sides of the head. That is the system in outline.

When you have tried it out remember to practise and to test the results by seeing whether you have really made your helmet invisible. Here are some of the faults you are likely to commit at first.

You will put too much garnishing over your helmet, and

the result will be something much more solid than the surrounding natural growth. You will use foliage of a different tone to that in which you wish to lie—for example, bracken from a wood will be conspicuous in a field where there is no bracken. You will use too long pieces of foliage, with the result that they will wave and blow about. If you use large leaves such as dock, they will die very soon and your work will have to be done again.

Think also of the changes of colour caused by changing seasons.

It is best to paint the red of the rubber, as this can easily give you away in bright sunshine.

Other ways of garnishing a steel helmet include (1) stretching a rabbit net over it, and tying it near the chin strap attachment. (Such net should be dyed green, and it should be secure enough to carry whatever is put in it, and not to be pulled off by branches or undergrowth); (2) a larger net secured under the rim, and big enough to let down over the face and the sides when in use.

These nets add an extra item to the soldier's equipment, and have no advantage over the first method described here.

It is wise to take a good look at a helmet wrongly garnished, as an awful example of what not to do. Stick a large number of bracken stems pointing upwards above the rim, so as to conceal the helmet completely. The effect will be "Somebody has picked a bunch of bracken and left it there."

Above all be careful that some of the foliage sticks out at the side sufficiently to destroy the contour of the helmet where it passes over the ears, but when doing this avoid anything that may interfere with your sense of hearing.

2. Camouflaging the Face. This does not mean blotting it out altogether, or making it invisible. It means altering it so that when the enemy looks in your direction it does not stand out from the surroundings looking like

what it is, but becomes a part of the pattern of light and shade round about it, and therefore is neither obvious nor recognizable by the enemy.

To do this well we should begin by asking ourselves what details first make us decide that any object is a face, human or animal.

The first thing a child looks for when searching for an animal's face is the eyes. The eyes are, as it were, a label saying "This is a face."

It is remarkable how the eye pattern rivets our attention wherever we see it, for example, make an enlargement of Fig. 21 and show it to a group of people, tell them first that it is just going to be a pattern of light and shade, and say that they will very rapidly find themselves looking at one particular point on the picture. Directly you hold it up, they will admit that their eyes have been arrested by the dark circle surrounded by a white one. Perhaps this is because for millions of years our ancestors, in the struggle for existence, have always kept their attention fixed on their enemy's eye, to see what he is going to do next.

So important is this that throughout the animal kingdom we find that those kinds of animal which use camouflage to help them in the struggle for existence nearly always include in their concealing body patterns something to deal with the eye.

Look at Figs. 23 and 24 showing frogs, snakes and a rodent. In each case the eye has been concealed by a long dark line continued down the body, which alters the round pattern which throughout nature means an eye.

The fish illustrated in Fig. 22 is a particularly interesting example of camouflage; not only does it have a dark strip passing through the eye down its body in order to conceal it, but on its tail very conspicuously there is the pattern of a false eye.

We can only assume that in the struggle for existence this fish has found this piece of deception valuable. Its enemy

makes a dart at what it assumes is the fish's face, and surprisingly enough the fish moves off in the opposite direction to the one the enemy expected.

I recommend that anyone who is interested in camouflage should read Professor Cott's *Adaptive Coloration in Animals*, from which these drawings have been taken.

After the eye the most conspicuous signs that a given object is a human face are first, the nose; and second, the symmetry. The nose, being prominent, catches more than its share of the light, and shines out clearly therefore.

The symmetry of the human face we take for granted. If we saw an object with two eyes both on the same side of the nose, we should at once doubt whether the eyes were really eyes or the nose a nose, and we should certainly doubt if the object was human.

We see from this that in order to make the human face cease to look like a human face and become part of the general pattern of the landscape, we should conceal the eyes and the nose and destroy the symmetry of the face as a whole.

It is important to understand this because unless we do it might be natural to suppose that to conceal the human face all that is necessary is to blacken the whole of it.

Think for a moment how foolish this would be. Consider the "nigger minstrel" with his coal black countenance. He is quite as conspicuous as if he had not painted his face at all—in fact, he is even more so.

Consider a Home Guard in his black boots lying in a field. To black his face merely adds a third conspicuous black blob to the other two.

The object of camouflage is not to blacken something light but to alter shapes so that they blend with the pattern of the background.

3. Painting the Face. Although some of the methods of face concealment to be mentioned later may be found

simpler to carry out, it will be excellent practice for the Home Guard to camouflage his face with paint in the exact way now to be described. It will impress on him the real methods of camouflage.

The paint to be used can be made at home, although grease paint is in some ways the best if this is procurable. It should be in shades of dark blue, dark grey, dark brown, or dark green. Home-made substitutes for grease paint can be made out of a little vaseline and flue dust, brick dust or any dark brown powder

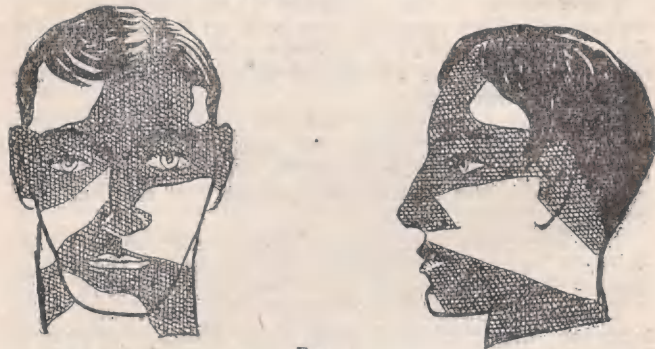


FIG. 19.

Burnt cork is not easy of preparation and comes off quickly.

The first rule which must always be remembered is that the best results cannot be got simply by smearing paint all over the face. What is wanted is a pattern with sharp outlines. The parts of the face that are painted should be completely covered, without any thin places. The parts of the face which are left bare should have no smears of paint on them. Here is a description of the concealing pattern illustrated in Fig. 19.

- (a) The eyes are concealed by a V-shaped line carried back to the ears. The whole lid, and the part between the eye and the nose, must be painted or the eye will show up more than ever. The upper lid must not be forgotten, or every time the man blinks he will be flashing a little lamp in the face of the enemy.
- (b) The nose must be well painted out.
- (c) The pattern must be quite different on each side of the face. Especially, the mouth can be stopped short on one side at the line of the nose. Thus the tell-tale symmetry is destroyed.

Note that a bright object consisting of most of one cheek has been left untouched. There are plenty of bright objects in the ordinary landscape and it does not matter in the least that this cheek will show up brightly, provided its general shape has been so altered that the enemy will not at once say to himself: "That bright object is a human face."

However careful you are, you cannot succeed in painting out certain types of eyes. Light blue eyes are particularly difficult, especially when they are surrounded with a good expanse of white.

For close work where concealment is absolutely necessary, and particularly for stalking at night where there is a danger of a very light or other illumination suddenly showing up the stalker's face, it is essential for men with such eyes to get into the habit of screwing them up as much as is consistent with a good view.

4. **Masks for the Face.** Paint has certain inconveniences. It takes a good time to put on, and in hot weather it will sweat off rapidly unless care is taken.

Various other methods may therefore be tried. It is possible to make masks of thick, starched muslin, etc., which can be carried in the pocket and put on when needed.

The disadvantage of such a mask is that it may be lost just when it is most needed.

Masks for face camouflage need not cover the whole face. They must be very different from the usual mask in their treatment of the eyes. Round eye holes in a mask would at once give away the face for what it is, whatever the pattern and shape of the rest of the mask. Vision may be secured by taking an oblong piece of material sufficiently big to cover the eyes, and then cutting or pulling out half the strands from which the material is woven to permit vision through. If the mask is made of sacking or hessian this is quite easy

5. **Nets for the Face.** Squares of curtain netting, stained dark green or dark brown, may be used to cover the face. The disadvantage of such a net is that if it fits tight over the face it does not alter the shape, even though it conceals the features. It is also liable, like the mask, to get lost. Moreover, many nets, when fitted over the face, produce too solid an effect, so that the enemy is as likely as not to say when he observes an object: "That is a human face covered by a net."

Nets can be very useful hung loose from the steel helmet, and on the whole this use of the net, combined with painting, is probably the most satisfactory solution.

Another disadvantage of both the mask and the net from the point of view of face camouflage is that they may interfere with the efficient use of gas respirators if these have to be put on suddenly. If they have to be taken off to adjust the respirator exactly, there is great danger of their being lost in the confusion, and if they are kept on, great care must be taken to prevent them producing a gap at the side of the head through which gas may leak.

6. **The Face at Night.** The face is particularly dangerous during night operations, because except on the very darkest nights it will reflect sufficient light to give the position away, and even on the darkest nights a sudden flash, whether

of gunfire or of a torch, or of a motor-car light or Very light, will at once light up the face like a signal flag.

Every face must be darkened before night operations, and as the main object here is to prevent the reflection of light, any method of darkening the face will be found useful.

If black is used, however, the greatest care must be taken to see that there is no shine in the material. Never forget that black boot polish, for example, does not conceal your boots but makes them shine up. Because so many black substances are shiny, black should be avoided, or used with care.

Men are often advised to smear their faces with mud so as to conceal them at night. As a last resort in a dangerous position, this advice may be given, but remember that nearly all sorts of mud dry to a very light colour, and the mud which may have been useful for a few minutes when you put it on wet, may end in showing up your face even more clearly than if you had used nothing at all.

One substance, which whatever its other disadvantages, has the advantage of not drying too light is cow-dung. This is very useful in a tight corner especially for the helmet.

In face concealment at night, particular care must be taken that the method does not interfere with hearing, since your ears become more important than your eyes in the dark.

Remember also that wet surfaces reflect the slightest amount of light and that a sudden shower of rain may leave your face and other parts of your person more easily detected.

It is not advisable to use any kind of net over the face at night. Although the net does not interfere sufficiently with vision to be a nuisance in daylight, it most certainly does interfere with seeing at night.

In the dark the eyes must not be hindered in the slightest degree in their task of distinguishing between slight differences of tone. Any net sufficiently thick to be useful as camouflage will be too thick for the eyes.

7. **Glasses and Eye-Guards.** The problem of concealing the face has been complicated by the fact that on many occasions the Home Guard will have to work with their anti-gas eye guards in position. Glass and mica reflect sunlight in a dangerous way. If the eyes behind them have been thoroughly darkened the danger is decreased, but the safest way of preventing this danger is by means of shadow cast by one of the forms of helmet camouflage which we have described.

So long as you can keep your glasses in the shadow you need not fear them, but even then it is advisable to avoid glasses with bright metal rims.

8. **One more word about the Steel Helmet.** I took part in an exercise in which the enemy consisted of some fifty Home Guards, every one of whom had their helmets covered with the new official dark green net.

Unfortunately nobody had told them that this alone is perfectly useless, that it must be supplemented by proper garnishing with leaves and weeds. The result was that they were just as conspicuous as if no net had been served out, and against light backgrounds even more conspicuous because of the solid dark effect.

In conversation I learned that every one of them thought that they were camouflaged successfully, simply because they had been supplied with the official camouflage net. May I emphasize once more, therefore, that the only proof of the pudding is in the eating, and that you must test out any net, paint, sacking, etc., that you may be told to use, and see whether men wearing them do actually become inconspicuous as they move about the country or take up their position in action stations.

9. **The Respirator Case.** This is the most difficult of all pieces of equipment to conceal. Every Home Guard should have this impressed upon him. The best way to do it is to have a number of demonstrators stand up at a dis-

ance of, say, 400 yards against a suitable hedge. If they lean well into the hedge without, however, allowing too many leaves to get between them and the spectator, it will be seen that most of their body is invisible or at least inconspicuous, but that even in these conditions the respirator case shines out almost like a car headlight.

Now the chief reason for this serious defect is that the material of which the respirator case is made is of quite a different texture from the material of our uniforms.

This is a point well worth considering, as it crops up all over the place and must be understood if we are to be sensible about concealing ourselves.

If you look at your battle dress, you will see that because it is made of wool little fibres stick up from the surface in every direction. Now each one of these fibres cuts off the light from its neighbour, and throws a tiny shadow. The result is that a rough texture, like that of a woollen garment, always appears of a darker tone than a smooth texture like the material of which the respirator case is made.

It is worth while making a simple demonstration of this.

Get a piece of smooth wood about two feet long and one foot across. Take an old rough towel and nail it over the board so as to cover half of it. Then get some paint, a middle green will do, and paint evenly over the entire surface, half of which will be wood and the other half towel. Let it dry. You will notice at once that although the same coloured paint was used on both surfaces, the green of the towel seems darker than the green of the smooth wood. That is the effect of the "contained shadow," due to the fibres sticking up and forming the rough surface of the towel.

This is why you have to be careful in quite another way if you wish to avoid the observation of the Nazis. A field of grass, even if it has been recently mown, has blades sticking up from the surface; their "contained shadow" produce a certain tone. If three or four men walk across this

field they press down and bruise the grass in their path, at once the surface where they have walked is smoother, there is less "contained shadow," and therefore the tone is lighter. If a Nazi reconnaissance plane comes along now and takes a photograph, a light silver line will appear across the field as a result.

The importance of track discipline to avoid this danger has already been emphasised in Section 2.

Now how are we to deal with the difference in texture between the respirator case and the British battle dress? The first thing to do is to darken the respirator case with a dull green paint, which will take out the shine and reduce the amount of light reflected, but this in itself will not be enough. The shape of the case remains to be concealed. Unless you break it up in some way, even the darkened case will give you away, and in sunlight will cast a strong shadow on one side or the other, which will show you up.

Having darkened your case, you should deal with this trouble in exactly the same way as you dealt with it in the case of the helmet, by garnishing the case with a few small branches or weeds, but do not overdo it. You must not go about with a solid curtain of greenery in front of you; you might just as well go about with the case itself. The chief part of the case to conceal in this way is the upper edge where the light shines on it.

You can either use a net or a bit of string with which to fix your garnishing, or if you are in a hurry you could poke a few pieces of foliage through underneath the strap.

On no account should you imagine that simply by reading this description and carrying out the instructions can you be successful. You must practise. You must watch people and test their efforts at concealing their respirator cases time and again, in all sorts of lights against all sorts of backgrounds, until you come to have an instinct for the right sort of thing.

Before leaving respirator cases, there is one other detail

worth mentioning. The case is held in position by brass rings and clips. These are dangerous because they shine up in the sun, and because they make a jingling noise, especially when you are crawling, which is quite sufficient to give you away on a still night. The noise can be eliminated by deadening with string or tape wrapped round at the danger points.

The bright shine of the brass can be easily conquered, but you should first of all obtain the permission of your responsible officer before carrying out my suggestion. What I advise is that you should take all these brass fittings and any other bright metal that you may have in your equipment, and put them on top of a very hot stove. They will very soon lose their shine and become a dark burnished brown.

10. Concealing the Hands. Hands are a danger point for two reasons, first of all because of their lightness of tone and second because they are the part of the body which is moved most by the untrained person advancing across rough country.

It is a mistake to darken the hands all over, for the same reason as we saw that this was a bad way of treating the face. Break up the even surface by painting stripes down the fingers and over the wrist, and you will probably succeed in making the hands far less conspicuous.

You should not forget, however, that one thing that makes the hand reflect so much light is the smoothness of its texture, and you should therefore experiment with gloves and mittens.

But by far the most important point to remember, if you are going to make your hands inconspicuous, is that movement is dangerous.

Here again I must return to the behaviour of the cat. *When it is stalking its enemy, it moves wisely when it has to move, and when it does not have to move it remains frozen.*

I have already said this, but I repeat it purposely. We

need to practise this, because we do not usually freeze up when we are supposed to be standing still.

Watch any Home Guard on an exercise. He never stops still for an instant. If his feet are stationary he is almost certain to be moving his head and his neck, scratching his ear, or fidgeting in some way with his arms and hands. It is those useless, fidgeting movements that we must avoid. If you observe carefully, you will notice on numerous occasions that a man would have been quite inconspicuous as he waited behind a hedge or against a tree if only he had not made unnecessary movements with his head or hands.

Of course, it is wise to get into the habit of keeping one's hands out of sight as much as possible when they are not in use, and nothing is worse for a man on patrol to swing his arms as he goes. He might just as well wave a couple of small flags in the face of an observant enemy.

Advancing with both hands on the rifle is a good way of keeping them still.

11. The Home Guard and His Boots. There is no natural object that looks in the least like a pair of boots. Perhaps the nearest thing to it is very fresh horse dung, but this is rare to see in our days. When a Home Guard lies out in an open field he will quite often give himself away by his boots rather than by his face.

The simple rule is to see that your boots are not too clean. Shiny boots may be useful on parade, but muddy boots are better when there is real work to be done.

The problem of concealing boots should be considered along with that of the problem of anklets. In a recent exercise between regular Army and Home Guards at our Fieldcraft School the Army stated that whereas the Home Guard were very well camouflaged as to helmet and face, and were very hard to see from in front, their anklets gave them away directly their enemy had got past them. If you are lying out in the open in anklets and boots, you must

put them under a growing weed if possible, or otherwise cover them up with a piece of turf or other available form of concealment.

If you decide to conceal your boots by smearing them with mud, be careful not to overdo this, and remember that mud dries very light indeed, and that it is not much better to have a pair of bright yellow boots than to have black ones.

12. Wire Concealment Screens. Especially if you have to lie out in an open grass field the methods of personal concealment described so far can be very usefully supplemented by taking with you a strip of wire netting 2 feet long and 6 or 9 inches wide. You can fix two small sticks through the netting at each end, to peg it to the ground, and garnish the netting with a few pieces of weed. If you lie behind such a miniature screen, it can be made to give you just that extra few inches of cover which means the difference between concealment and being found out.

You must practise using such screens, as there are one or two dangers to be avoided. Just as with your helmet you must not overdo the garnishing. If you weave foliage in between every hole, you will produce something far thicker than any ordinary growth, and that will make you conspicuous at once.

Another danger can easily be avoided with practice. Whether you use a screen or not when lying out in the open, you must not choose a position so that your helmet or screen is silhouetted against the skyline. If you do this, the effect may be as if the field were covered with grassy molehills, and suspicion will at once be aroused.

You must always watch out for the slope of the ground. Some kinds of slope will leave you with your boots above your head, and then if you pay most of your attention to your face and helmet your shoulders, back, legs and boots may be left unconcealed. Other kinds of slopes will leave you like a lump on the skyline.

13. **The Green Men of Crete.** Do not forget that camouflage—and fieldcraft generally—must be thought out and experimented with all the time. Here is something that I should like the Home Guard to work on as well as the methods of face painting that I have suggested above.

According to our military reports the German airborne troops dropped on Crete with their faces, necks and hands painted green. Apparently the effect was very remarkable.

We are used to warm colours in faces, pink and other flesh tints. An object of a cold green colour does not, apparently, appeal to us as being a human face, and therefore by shattering our ideas of what a human face should look like, green paint acts as first-class concealment. The best paint to use is a middle green poster paint. Be careful to ascertain when buying it that the paint does not stain and contains no deleterious or poisonous substance. Be very careful to avoid an arsenic-compound paint.

14. **Camouflage for Snipers and Observers.** We now come to the most exciting form of personal camouflage.

During the last war it was found that if men were clothed in the proper kind of sniper suit, they could lie or stand up in the trenches or elsewhere very close indeed to the enemy, without being seen at all.

Now picture the situation which might arise during a Nazi invasion. Your district is occupied temporarily, and you find yourselves behind the spearhead of the Nazi's thrust. Imagine the state of mind of the Nazi if, wherever he went, suddenly, from a few yards away, what he imagined was a log or tree stump or piece of a bush or piece of a wall (that is, if he notices it at all) shoots at him. Imagine the mind of the Nazi if he could never be certain, wherever he walked, that some apparently harmless piece of the scenery would not suddenly fire at him with deadly aim.

Or take another point. The Home Guard is never likely to have as much ammunition as it would like. One way of

increasing the amount of useful ammunition you have got is to learn to hold your fire. Twenty rounds of ammunition which can usefully be used at a range of twenty-five yards is better worth having than fifty rounds of ammunition that you will have to use at 250 yards. Anything, therefore, that will help you to hold your fire to the very last moment is an excellent way of increasing your ammunition supply, and if you can observe Nazis at close quarters without their being able to spot you, that also will increase your usefulness.

These things can be done if you learn how to make and use a sniper's suit to the best advantage.

15. **The Pattern of the Sniper's Suit.** The object of the sniper's suit is to make you as much like the general pattern of the background as possible, and in order to do this, to destroy your human shape as well as your human features. It is therefore cut as unlike a Savile Row tailor's suit as possible.

The material most suitable is an open-meshed hessian, which can be bought for about 1/4 a yard. Old sacks can very well be used instead. A piece of material 6 feet by 10 feet should be folded over twice. The shaded area should be cut away as in the drawing, and the accompanying instructions carefully carried out. Another piece of hessian or sacking 3 feet by 5 feet must also be folded and cut out to make the hood according to the picture below. The sniper's suit can be worn along with carefully camouflaged steel helmet, or with the hood; on the other hand, the hood can be worn without the suit.

Note carefully one or two points:

First, that you must stitch well away from the edges, so that you will not make a garment which will readily take the shape of the human body, and thereby give you away.

Second, you must on no account cut round holes or a pair of holes for the eyes, you must make the drawn thread eye aperture exactly as described here. It is best to wait

until you have made the hood and then to put it on your head and get somebody to chalk an oblong in front of your eyes 6 inches by $1\frac{1}{2}$ inches. Then cut out some of the threads until you are able to see perfectly.

16. Painting the Sniper's Suit. In the illustrated supplement at the end of paragraph 19 you will see the drawings of the official Army pattern for suits; you should not, however, copy them slavishly, but go on painting until you have got something which happens to fit in perfectly with your local surroundings at the point where you want to use the sniper's suit. Fig. 26.

It is a very good thing indeed to paint different designs back and front, as you will very seldom require to use a position where your back will be visible as well as your front. Then you can turn towards the enemy that part of the suit which has a pattern suitable for your background at the moment.

The best kind of paint for snipers' suits and other camouflage materials is Lanoflage, to be had from The Hadrian Varnish Company, Holtwhistle, Northumberland.

In choosing the colours be extremely careful to avoid any blue-green. All greens should be yellow green, and most of it a darkish olive.

17. The Use of the Sniper's Suit. Everything depends upon your learning exactly how to choose your position, and you cannot do this unless you have a comrade to help you by pointing out your errors until you get quite proficient and choose the proper place almost by instinct.

You will find that you will at first tend to make one or other of two mistakes. You will either be so certain that you must be visible to the enemy that you will tend to hide behind natural cover, which defeats the whole object of the suit, or you will not choose your background correctly, and will neglect to see that there is sufficient shadow to help to make you blend.

With regard to the first fault, always remember that nobody would suggest the use of artificial cover like a sniper's suit if there is good enough natural cover. The sniper's suit is for use when nature does not give you all that you want in the way of cover, therefore you should practise using it in the barest possible surroundings.

Never take up a position in a sniper's suit unless you have a comfortable chance of getting into a good firing attitude, either kneeling, standing or lying down. Also bear in mind that you should have a very good field of fire, and that whenever possible you should have a look round before you take up your position to see that you have allowed yourself a good line of retreat. The best snipers very often are those who never shoot twice from one position. Above all, it is fatal to try to shoot night after night from the same position, because the enemy will take the trouble to plot out the place from which the gun flashes are coming, and at the very first opportunity will deal with you drastically.

18. Demonstrating the Sniper's Suit. People who have never seen sniper's suits need an opportunity of watching them in action before they can realize how valuable they may be. This is how we demonstrate the use of sniper's suits at the Burwash Fieldcraft School. We have five experienced demonstrators who take up positions within a given area on the outskirts of a small wood. The students are told what they are going to see. It is carefully explained that they should put themselves in the position of an unsuspecting Nazi who does not know that there are five snipers in this area, that nobody pretends that they can produce an invisible man, that as their attention has been drawn to the existence of the snipers they will probably see them, that when they have seen three out of the five they are to sit down on the ground without pointing them out to anybody else, and having been told this, they are ordered to advance down the field towards the snipers in a single rank.

Usually they do not see more than two at most, and often they step on one before they have become aware of his presence. They are given a good chance of looking round, and then they are told to return to their starting point.

Next, each demonstrator is called to in turn, and ordered to wave his hands. Next, to take off his sniper's hood. Next, to step out of his position until he becomes very visible, and then he is directed to another position where he suddenly sinks out of sight altogether.

The students are advised to half close their eyes so as to get a better picture of what things would look like if they were not already actually looking in the right direction.

Having by this means explained exactly what the successful use of the sniper's suit depends upon, the demonstrators return and hand over their suits and hoods to five of the students, while another five students step forward to act as critic and observer for each of the five who are going to take up sniper's positions. The men in the sniper's suits are told to choose their positions, their critics are then to shout out to them any mistakes that they are making. Everybody has a chance of practising like this.

It is of no use to anyone simply being shown men in sniper's suits difficult to see in a wood. They must put on the sniper's suits themselves, and experience the effect of taking up a position in them. They must do this a hundred times if they are really to become expert.

19. Description of Illustrations. (*Note.* These illustrations are reproduced by permission of the publishers, Messrs. Methuen, from Professor Hugh B. Cott's *Adaptive Coloration in Animals*, a book which anyone interested in camouflage should try to see.)

(2b) (Cott, pp. 66/7, Fig. 18). On this page you see the value of a disruptive pattern of light and dark tones. If the snake had been coloured as in the first drawing, that is, the same tone all over, it would be very visible against a normal

false background, as you will see in the third drawing. This snake, although it is the same colour all over, naturally will look light above and dark below, because it is illuminated by the sun from above.

The second drawing shows the Copperhead snake as it really is. Against the white page it looks very conspicuous, but look at it against the same normal false background.

(21) (Cott, p. 82, Fig. 30). Look at this pattern of black, white and shaded portions. What is it that immediately strikes your eye? The white circle and the black dot in the centre. This is the eye pattern throughout nature. Because it immediately attracts our attention as a target we talk of the bull's eye on a target. It is a danger spot for any animal.

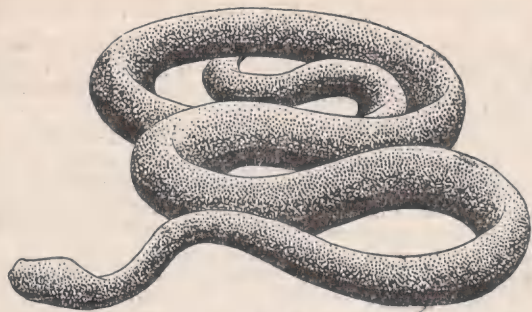
(22) (Cott, p. 59, Fig. 13; p. 73, Fig. 22; p. 86, Fig. 33). Fish know this, and here are three examples of how they conceal the eye pattern. In the first one the eye has been "crossed out" by a vertical line, and two other dark bands complete the pattern. Imagine this fish against a varied background rather than against a white page. It would be very difficult to decide what shape it was, and where its face was.

The third fish has not only painted out its real eye, but painted in a false eye pattern near its tail. The effect of this is to confuse an enemy, which darts at the false eye and is surprised to find its prey dart off apparently backwards.

(23) (Cott, p. 84, Fig. 31; p. 85, Fig. 32, Nos. 1, 3 and 5). Just as fish recognize the fact of the eye, so do frogs. Here are three frog patterns, followed by three snake patterns, all solving the problem in much the same way.

(24) (Cott, p. 89, Fig. 37). Finally, we have a mammal using the same camouflage method to get rid of the eye.

(25) (Cott, p. 340, Fig. 71; p. 341, Fig. 72). Animal use of garnishing. These two fishes are interesting examples of the natural use of garnishing and pattern to imitate surroundings, in this case the seaweed of shallow ocean waters.



I



2



FIG. 20.

3
III



4
III



FIG. 21.



FIG. 22.

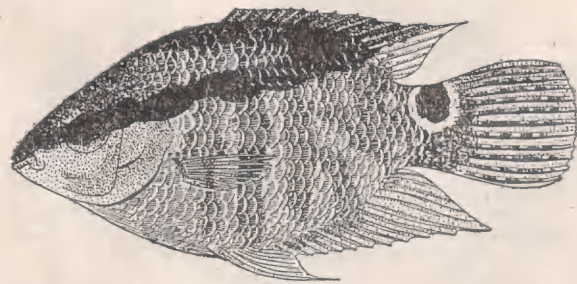
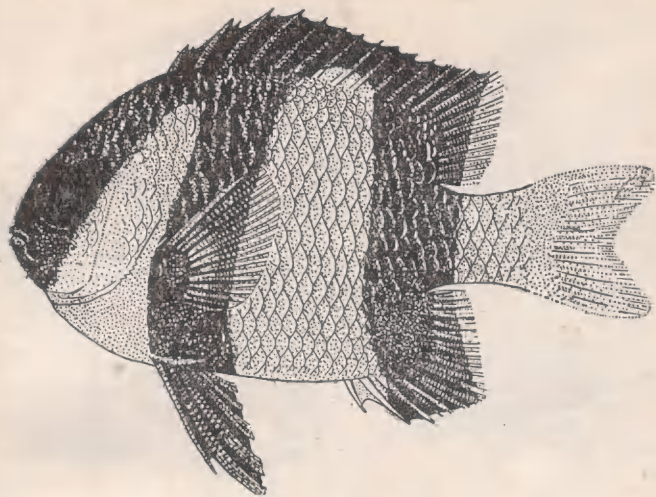


FIG. 22.

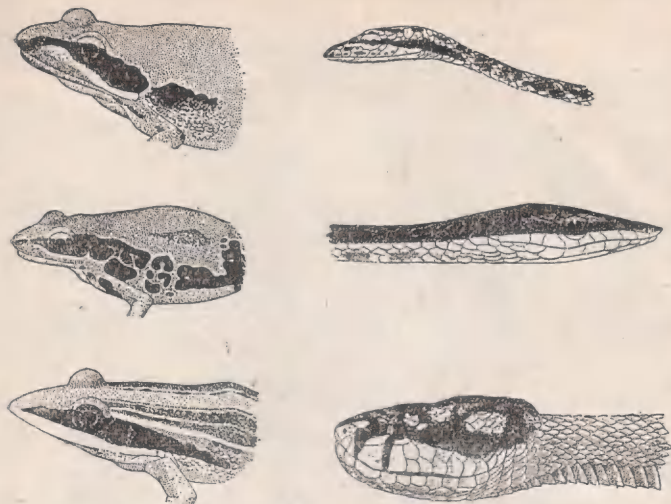


FIG. 23.



FIG. 24.



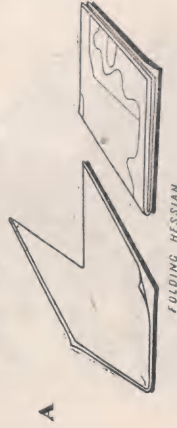
Ayl. B. G. R.



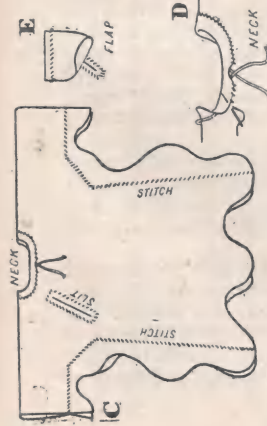
FIG. 25.

TO MAKE A SNIPER SUIT

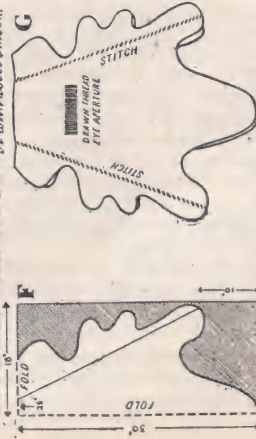
TO MAKE THE SMOCK from a piece of hessian 8 ft. by 10 ft. (width 8 ft. by 10 ft.)
FOLD hessian twice as sketch A and chalk out design as in sketch B - make sure that folds are on correct sides.



Allow dimensions as for a large man.



TO MAKE THE HOOD To be worn by having snipe or with a bow smock.



To be made from a piece of hessian 3 ft. by 5 ft.
FOLD hessian as for smock and chalk out design as in sketch E.
CUT away the shaded area and lay out as in sketch F.
STITCH the back end front together with strong thread.

PAINTING IN TWO COLOURS on hessian.
SMOCKS - White unpainted hessian.



1
DESIGN suited to agricultural, bog, field and peat land.
 DARK OLIVE GREEN
 NEARLY BLACK
 STANDARD COLOUR 13, 14
 MID TONE GREEN
 STANDARD COLOUR 9 OR 2.



2
DESIGN suited to rocks, stone, earth and scrubland.
 DARK BROWN
 STANDARD COLOUR 1A
 MEDIUM GREY OR LIGHT EARTH
 STANDARD COLOURS 2, 3, 4
 SOIL MARKED W - WHITE



3
DESIGN suited to buildings.
 DARK BROWN
 STANDARD COLOUR 1A
 BRICK RED OR STONE
 STANDARD COLOURS 10, 11
 TO SUIT LOCAL BUILDINGS

TO PAINT First chalk out design, then paint leaving rough edges - coloured areas need not meet by 1/2" a disrupted effect is required, leave a definite gap between the colours. Any matt paint will do.

HOODS -



COLOUR the hoods as smocks - see colours here above.
 The above designs are only intended to be used as guides. Pattern and colour must fit the local background.

EYE APERTURE

Place hood over head and chalk on design in front of eyes - 6 inches by 1 1/2 inches (Sketch 5). Cut all cross threads at sides and allow threads at top and bottom of design and pull them out.

The first fish lives amongst the floating seaweeds of the Sargasso Sea. The second one is thus described by Professor Cott: "One can scarcely imagine a less fish-like fish than this extraordinary Sea-horse with its fantastic outline distorted and broken up by numerous filaments—developed from its head and tail, back and belly—which stream out in the surrounding water and create a most deceptive resemblance to weed. The filaments themselves, as may be seen from the accompanying illustration are variously shaped. Branches of what appear to be a fine species of weed sprout from the chin and the back of the head; broader leaf-like fronds of a larger weed are simulated by processes springing at intervals from the dorsal and ventral surfaces; while a series of flattened plumelike spines, mainly but not confined to the ventral surface, simulate sprouting algal shoots."

This sea dragon might well be taken as the distinguishing 'flash' of the good Home Guard fieldcraft expert.

Note—With practice, improvements will be found in the official design for sniper's suit illustrated in this Section. We have found at the Burwash Fieldcraft School that the most open-meshed hessian that can be found is the best, and that if anything as close as ordinary sacking or canvas is used, small pieces of wool or other material must be sewn on to break the texture. Denims are very dangerous because their texture produces a very bright shine, but if they are painted suitably with absolutely matt paint they can be successfully camouflaged.

For many purposes the sniper's suit may be thought too clumsy, and readers are advised to experiment by making hoods of a larger size reaching to the waist. These can easily be taken off when the moment comes to run, and they do not in any case impede the movements of the legs.

Care should be taken to make hoods that are going to be used alone so wide that they stretch from the head to the tip of the shoulders, and come down over the arm, having a hole for the arm to go through on each side. They must reach to the waist and must particularly cover the respirator case and leather belt. With such a hood the sniper must either kneel or use natural cover of some sort for his legs.

SECTION VII

NIGHT TRAINING

1. The Home Guard and Night Work. You will probably have more work to do at night than in the day since then the Nazi invaders will be completely at your mercy provided you have trained yourself to use your knowledge of country to the full.

- (a) The Nazis cannot move through carefully defended country at night without almost certainly being surprised.
- (b) Nazi tanks will have to lie up and their crew come out to rest.
- (c) If the Nazis know your prepared positions, night will give them a chance of surprising you. You must therefore know how to guard against surprise.

2. How to Move Unseen and Unheard at Night. This requires special training. Begin by standing at night in a hedge beside a well-frequented road. Watch how the passers-by give away their presence and take warning from what you observe.

- (a) You will almost always hear them before you see them. Never forget this. It means that at night, the ears, not the eyes, must usually be your chief guides. Your ears will guide your eyes towards objects that would otherwise not be seen. *So will the Nazis' ears.* You must learn to move silently.

Every section leader should train his men to fall in and move off in silence and to halt without a spoken order. All orders must be given either by a white

object held by the leader or by the man in front of an Indian file passing the order back by touch, or simply by watching the movement of the man in front. The latter will be enough on most semi-dark nights, but touch will be needed in total darkness.

It will often be found useful to have each man in a night patrol tied to the man in front by a piece of string of known length, say ten yards. Important information can be passed down the line by tugging on this string, and also the string can be used to judge distances gone accurately. The man in front will stop when the string is taut and wait for the next man to come up to him. In this way a 10-yard measure can be had. Each member of a mobile patrol should have a toggle rope round his waist of sufficient strength to support his weight. These ropes when joined up, can be used for many purposes.

On soft ground heels first; on hard ground toes first; in long grass lift your feet high. Padded feet on hard road surfaces. When close to the enemy or when the ground is very difficult (i.e. dry twigs or leaves) wait for a good rustle of wind or any other covering noise.

See that nothing worn can rattle. Chew gum or sweets to avoid coughing. Be very careful opening a rifle bolt and never whisper.

The "hundred yards' course" mentioned in Section IV must be used at night also. In other words, you must practise walking silently over every kind of surface in various conditions of darkness.

- (b) What part of an approaching person do you see first? (I assume that he is not smoking: cigarettes, matches, lighters are obviously barred from all night work).

Note an approaching man and girl. You will usually see the girl's legs first because they are the lightest part of the two bodies. You will also see

them before a light face because they move more. You will see swinging hands—they are light and in rapid motion.

Note a man approaching alone: you will see his face and hands first.

From this you learn that for night work you must wear no light clothing and you must darken your face and hands.

In order to keep touch with the rest of the patrol the leader may have a piece of cardboard or cloth hung over his shoulders at the back. One side should be light, the other dark and it should be possible to turn it dark side out immediately. This is the only light object that should be carried.

The greatest care must be taken to conceal the face of a luminous watch.

- (c) If a car passes along the road the lighter parts of pedestrians will at once show up although they may have hitherto been totally invisible.

Remember that the enemy may at any moment use a Very light or some other illumination. If you have not darkened everything about your person you will at once show up. In any case your best chance will lie in remaining quite still. If you have a chance to lie down before the light bursts, do so; otherwise stop as you are without moving a muscle.

Consider carefully the detailed description of face concealment in Section VI, and be particularly careful to screw up your eyes, as far as is compatible with reasonable vision, if you find yourself caught by an enemy light.

It will be a very good thing to practise the sudden switching on of a light and its effects. Have your demonstrators in various positions, lying by the side of a road, kneeling in a hedge, etc. Do not let the others see them take up these positions. Then

switch on the headlamps of a car so as to illuminate two or three demonstrators, for a period of a few seconds only. Note how the demonstrators will escape observation if they have remained perfectly still. Have your observers discuss what part of the demonstrator gives him away if he is seen. After half a minute, switch on the light again for a few seconds, having told some demonstrators to remain in their position exactly as they were, others to duck their heads down or otherwise keep their cover without moving, and others to try and slip away.

Note the difficulty of slipping away in silence unless the demonstrator has been very careful to arrange for a getaway beforehand.

Continue such simple demonstrations with all sorts of variations, all the time bearing in mind that your object is to consider the best way of avoiding destruction by the enemy.

- (d) You will see the passers-by best if you stand so that you see them against the skyline.

Let this teach you to be careful when you are on night patrol not only of what is in front of you but of what is behind you. Always avoid as far as you can being silhouetted against a skyline. When coming over the brow of a hill use a hedge or wall to protect you, bending if necessary to prevent your head reaching above it. If there is no other cover you may have to crawl over the brow.

Don't imagine, however, that the mere act of crouching makes you invisible. Many people seem to think this. It depends entirely on the background.

- (e) Unless the passers-by give themselves away by sounds it is ten to one that you will first detect them by movement.

Let this teach you never to move at night except

when it is necessary. When halted behave like a statue. Especially avoid turning your head.

Always avoid movement against the skyline. You will also give yourself away, especially at corners, if your body moves against the lighter road surface.

If you can move along an open field with a wood at your side and behind you, you will do better than moving in the wood itself because the dark background will hide your movement and you will find it less difficult to move silently.

Remember, however, that if you are moving across an open field trusting to the protection of a wood behind you there will come a point when your head will appear above the wood to anyone watching from the far side of the field.

Remember too, that if the watcher is well-trained he will be watching for you from ground level, since then your head will become visible sooner.

3. Necessary Training of your Senses for Night Work. Your eyes, ears and sense of touch—even your sense of smell—need special training if they are to do their best at night.

- (a) *Eyes.* In Finland the Finns could see far better than most Russians at night because they took the trouble to train their eyes specially for night vision.

The national beverages of Finland, as far as I could judge, are brandy and milk. But no brandy was drunk at the front. In the war zones the army was strictly teetotal. Night patrols should never drink alcohol after midday. The effect of alcohol is to slow up the eye's power to adapt itself to gradations of light intensity. This may cost you your life. You need to increase your visual muscular control so as to see immediately the slightest change of brightness in

the surrounding semi-darkness. Alcohol slows up visual muscular control.

On the other hand, night vision is definitely improved by milk, butter and other vitamin rich foods. Halibut or Cod Liver oil may improve your night vision enormously. Those who specialize in night work—and they will be among the most valuable Home Guards—will do well to pay attention to their diet.

Rest your eyesight from bright lights and from use in brilliant sunlight for some hours before you undertake important night duties.

You can really see much more in the dark than you realize; what you need is practice in understanding what you see and in accurately guessing from small indications what is really invisible.

A simple demonstration should be carried out in varying degrees of darkness. The demonstrator is told to approach you from a considerable distance away. He must be completely invisible when he starts, and he must move without making any noise. When he has become visible he is told to stop. He then turns about and moves away again. You will notice that he remains in sight for a considerable time. This is because, having once seen an object at night, your eyes are able to follow it as it gets paler; the difficulty is to spot the object first of all.

There is a tip which ought to be known to everyone for this: On any starry night look up into the sky and fix your eyes on a fairly faint star. Without moving the centre of your vision off that star, note at some distance to it a fainter star still, then switch the focus of your sight from the first star to the fainter one. It will immediately disappear. Look back at the first star, and you will see the fainter one again.

The reason for this is that the part of our eye which we use to focus straight on an object, although it is

more acute for important purposes, is not as capable of distinguishing very faint objects as parts of the eye off centre.

If, therefore, you are not quite certain whether you can see a man moving or approaching, look away a few degrees to left or right, and if your suspicions are correct you will see the faint object much more certainly.

- (b) *Ears.* We often neglect our sense of hearing because our eyes tell us sufficient in normal circumstances, and most of us know less about what our ears can and cannot do than we should. First, the care of the ears must not be neglected. A very large number of people would be far better for a syringing of their ears in order to clear out deposits of wax.

Next, you should test your ears to see how they can be used best. One is probably rather more acute than the other. Find out which this is and always turn it to the source of the sound. Try putting your ear to the ground, especially if it is hard; or better still, to a railway line. A wall may be useful.

In order to sort out the sounds which indicate an enemy be careful to learn the ordinary sounds of everyday life. Practise listening to the sounds of early evening both at a street corner and in the fields. Particularly observe the sound of sheep cropping grass, of telegraph wires, of an engine letting off steam in the distance, of water flowing, of moisture drying into a grass field, of the ordinary movements of animals, of night birds.

When you know all the usual sounds you will more easily distinguish the sounds you will be after, such as men trying to move silently, hidden men whispering, moving their rifles, using pick and shovel.

In normal life we do not train our ears with anything like the same care as we train our eyes. Take for

example the way in which we listen to music. Most people, unless having some knowledge of music, are satisfied when they are listening to an orchestra to hear the tune.

It is excellent practice to turn on the wireless and listen to an orchestra and to pick out one or other of the instruments, such as the violas, or the oboe or clarinet or bassoon, and follow their part right through, whether they are taking up the tune or not. With a little practice even those who know nothing about music can pick out and follow every one of the instruments separately. This should be valuable training for the Home Guard who has got to pick out the sound of a Nazi digging himself in amid the other sounds of night.

Pay particular attention to the effect of wind on sounds and do not trust your ears in a gale or in heavy rain.

People are so unused to taking their sense of hearing seriously that special demonstrations should always be carried out during training. These demonstrations should aim at making people sound-conscious.

Demonstration 1. Divide your section into two groups and place them out of sight of one another, but within two or three yards. Have the men in each group write down every sound that they have heard, both from the other group and from the country around (*e.g.* distant railway train, birds, wind, etc.). Then have the two groups compare notes.

Demonstration 2. Line up your section in complete silence, having sent demonstrators to make typical noises at points out of sight varying in distance from 50 to 300 yards. Have each man write down the noises that he has heard, and the distance away that he imagines the sounds to be.

When this has been done, tell the section the distances at which the demonstrators were (50, 100, 150, 200, 300 yards). Next having given instructions previously to the demonstrators as to what you are going to do, and what they are going to do) say a few words in a reasonably loud voice. The demonstrators are to repeat your words if they hear them. Then say other words in a quieter voice until the most distant demonstrator can no longer hear, and then the next one, and so forth.

It will come as a surprise how low a voice can be heard at even 300 yards on a very quiet day, and even more so on a very quiet night.

Demonstration 3. Having concealed an observer at a distance of 10 yards, place your section at a suitable spot, with instructions to wait for 5 minutes, and then to advance to attack an enemy concealed in cover 50 yards away. Do not give them particular instructions to be silent. The observer, who is in the position indicated as that occupied by the enemy to be attacked, must write down every sound that he has heard from the attackers during the five minutes they have been told to wait.

People should be made to carry this out as an exercise until they are able to remain five minutes waiting to advance without giving their position away at all.

Demonstration 4. Vary the previous demonstration by giving instructions to the waiting section to carry out certain actions, *e.g.* load rifles, put on steel helmets, take up positions in extended order in cover, give and receive orders, etc.

It is worth while considering one way in which the ear is worse than the eye at giving us necessary information.

Have a demonstrator close his eyes and keep them so until he is told to open them again. Tell him you are going to snap your fingers at various points around

NIGHT TRAINING

his head, back and front, below his chin, above his forehead, behind his ears, etc. He is to point with one finger at the exact spot in space where he thinks you snapped your finger each time. When you snap your finger in certain directions he will be able to tell you correctly where the noise came from, but in several other planes he will be at a complete loss as to whether it was below chin level or above the forehead level, behind or in front.

This fact should be borne in mind when we consider night fieldcraft. One of the difficulties with sounds is that our ears are not very accurate in telling us the direction from which they come.

The only way of remedying this is to make a point of moving the head about until some indication has been got as to the correct direction.

There is an important point about the use of our senses at night-time. We may not think that we are seeing much, but our eyes do contribute a certain amount of information even on the very darkest night. It is therefore a bad plan to practise night fieldcraft, as some people try to do, during the daytime with eyes blindfolded. The artificiality plus the interference with hearing, and above all the false effect upon eyesight, produces a state of affairs which is very different from the real thing. A blindfolded man is not imitating a man in the dark. During the winter there is no need for such subterfuges. In summer it is a better plan to get the cheap anti-gas spray goggles which can be bought for a few pence, and darken them down until very little can be seen, but there is no really satisfactory substitute for darkness itself.

- (c) *Touch.* You can begin at home. Be able to move anywhere in your house, to pick up and find anything, to do anything in total darkness. Get someone to move the furniture from its usual positions and learn

to move about without knocking into it or making any noise. Learn to unlock a door, to lift a latch, to turn a handle, to open a drawer and choose your clothes without sound and in complete darkness. Eat a complete meal in the dark helping yourself to vegetables, salt, pepper, without making mistakes.

Having begun your training of touch in this way, you must proceed to learn how to use your weapons by touch alone. This must include: Maintenance of machine-guns including fitting magazines and rectifying stoppages, cleaning of weapons after firing, filling vehicles with oil and petrol, changing wheels, etc., adjusting respirators and gas decontaminators.

- (d) *Smell.* The sense of smell can often come in very useful at night. It is remarkable how far a lighted cigarette can be smelt in the dark, and a man stalking you can give himself away at twenty yards or more if he is using hair oil.

Smoking should be absolutely prohibited on all night exercises, and it is particularly important to remember that stubbed cigarette-ends thrown down in a wood will be smelt by anyone coming that way soon after.

4. **Training to Detect Nazis at Night.** Having first seen that your organs of sense are as keenly developed as possible, you must now turn to the outside world. You must know how every detail of the country in which you will have to work looks in every kind of semi-darkness.

- (a) Begin this at your usual posts. Go on guard at dusk and carefully mark every detail and how it looks at sunset, at twilight, in moonlight, on a cloudy night, on a moonless starry night, in very great darkness and bad weather.

Do not forget to repeat these observations at all

seasons of the year. A tree looks very different on a summer night and on a winter night.

Every Home Guard who occupies a given post should know how things look so well that he can instantly detect anything new amid the night shadows and keep it under observation.

It is particularly important that every Home Guard post and observation post, and also all Home Guard action stations, should have as part of their equipment a range card, on which all objects likely to be visible at night-time are marked. The men who have to man these points should know the distances of all these objects, especially if they offer cover, because an enemy attacking at night will be likely to trust to the cover afforded by trees and bushes at very close range.

- (b) In the same way sections of the Home Guard should be given practice in observing by all kinds of light whatever is to be seen from any strong point or road block which he may have to man at night.

Exercises should be carried out to afford practice. Men should approach the positions in all sorts of ways from every direction and competitions be arranged in their rapid detection.

- (c) More difficult but more important still, you must practise recognizing the details throughout the piece of country which you may have to work over, either as a mobile night patrol or as a guide to military forces.

In all three cases you must learn to judge distances by whatever kind of night visibility you may have to experience. Every Home Guard section should be given practice in observing at what distance men, moving, standing still, crawling, can be seen, also the distance of lights, hills, trees, buildings and how they can be judged at night. Not only must distances be

judged by the naked eye, but through field-glasses, in the use of which special practice is essential.

Every movement at night which may bring contact with the enemy should be followed by a period of absolute immobility. The object of this is to listen in case the enemy has become alarmed by the previous movement and also to gather up fresh information. Nobody can hear as well moving as motionless, and unless you pause frequently you will put yourself at a great disadvantage compared with the enemy who is probably at rest.

On a very dark night it is particularly important to avoid losing your direction when you stop. If you cannot see at all you must not alter the direction of your feet! If you are going to stop for some time you must first fix on some object which is in the line of your previous movement, so that you can go on in the same direction when you move; otherwise it is very easy to begin moving in circles.

If you have any reason to believe that you may have been observed by the enemy—especially if you have made a loud noise, such as breaking a branch or tripping over a stone—you must remain absolutely motionless for a very long time indeed. Remember that the enemy is now straining his ears for another sign of your presence and the whole thing becomes a competition in patience.

Your chance of success in all these night operations depends upon intimate knowledge of every detail of your countryside and you should prepare for any duty that may come your way by examining the country by daylight. Get well into your mind every path along which you can go silently and invisibly. Make a note of every obstacle which may cause you difficulty in the dark. Learn how to avoid the places where you would be likely to appear above the skyline.

Choose out the best cover where you can rest, pause for observation or hide if the enemy is on your tracks. Pay particular attention to the places which the enemy is most likely to choose out for his night rest and study how these places can be surrounded and how you can lead troops to commanding positions with least likelihood of their being detected.

In everything that you do make a habit of putting yourself in your enemy's place. Assume that he knows just as much as you do about night fieldcraft and that a battle of wits is going on all the time. You are moving, he is listening. You are hunting: he is waiting. Never for a moment allow yourself to underestimate his training, his keenness, his intelligence. Judge him your equal and then you will realize that your chance of success depends upon one thing, his ignorance of the country and your trained, disciplined knowledge of the country.

5. Useful Preparations. Great emphasis has been laid in these pages on the necessity for silence at night. It is worth while making special preparations so that you can be certain of being able to move in silence.

This is what the poacher does. If a poacher proposes to work a given wood, he chooses a suitable tree near its edge with some cover round it, and carefully removes all dry sticks and other dangerous objects so as to form a silent path all round the tree. He is then able to put the tree between him and any danger, without having to worry about the chance of making a noise.

Home Guard defended positions should be treated in the same way. You may be quite certain that the enemy will count upon it being difficult for you to move silently, and if you have therefore constructed paths along which you can move silently, you will add considerably to your own mobility.

In the same way, if there are directions from which you fear possible surprise advance of the enemy, make things more difficult for him by strewing dry sticks which will act as satisfactorily as an elaborate burglar alarm.

6. Indoor Practice for Night Fieldcraft. The blackout makes it even more difficult than normally to practise fieldcraft out-of-doors. For the Burwash Fieldcraft School we have therefore devised the following from simple apparatus for work indoors.

A piece of hessian (old sacks sewn together will do) 4 feet. wide and long enough to stretch across one end of the instruction barn is painted very roughly to represent undergrowth. (All that is wanted for this is splodges and stripes of dark brown, dark green and black paint, with a few daubs of lighter paint at odd intervals.

In this strip are cut six holes, four large enough to expose the helmet and face and neck of a man lying or kneeling behind, the other two somewhat larger, so as to reveal most of a kneeling man, but not wide enough to stretch beyond his figure.

Men are told to kneel and lie behind this screen, with their faces and bodies filling the holes. This is all done in the dark without the students seeing the screen or the men beforehand. Some of the demonstrators have got no camouflage at all, others have their faces and helmets properly camouflaged.

When all is ready, a fairly powerful torch is flashed on to one end of the screen, and its beam allowed to travel rapidly along the screen to the other end, the whole period of light being not more than two seconds.

Students are asked what they have seen. They are then told to crawl forward in the dark, and to touch any demonstrator that they saw. It is usually found that this is very difficult, even in the case of demonstrators not using any camouflage. A very brief illumination does not give a

man much idea of the direction of an enemy, though it will of course be sufficient to enable him to spray the foreground with machine-gun fire.

The time of illumination is lengthened. Various points are commented upon, and finally the lights are put on permanently, and detailed discussion takes place as to what points make a man conspicuous at night and how to overcome these dangers.

It is possible to arrange the illumination so that at first there is hardly more light visible than exists on a starry night.

This demonstration screen is also useful to demonstrate another point. Demonstrators stand behind it, but with their head and shoulders above it. The background behind their heads is dark, but immediately above this dark background there is a band of white paint. Students can thus see that the man who is invisible while they are standing up becomes visible if they lie down on the floor and see the head silhouetted against the white background.

Such simple demonstrations are very useful for impressing vital points about night fieldcraft, to be later driven home by actual work out of doors. Rule. Whenever you halt at night, automatically lie down.

The following demonstration is also excellent indoors:

Half a dozen students are told to stalk one demonstrator. They can claim a victim if they are able to put their hand on his shoulder. The hall is made absolutely dark, and the demonstrator is given a box of matches, with instructions to strike one above his head, and immediately blow it out. He can then move his position silently wherever he likes; or the demonstration may be varied by having him remain in position.

It will be found that it is far more difficult to touch him than might be imagined, and this is of value for impressing upon people that a rifle flash in the dark is not very likely to give a man away. The enemy is blinded by the flash and is more than ever conscious of the ensuing blackness.

SECTION VIII

MESSAGES AND COMMUNICATIONS

1. Knowledge is Strength. In the original exercise as described in Section III it was laid down that one of the tasks of the Home Guard would be to make quite certain that whatever happened in any part of the field of conflict would be known as soon as possible by those directing at Headquarters.

This is usually the most neglected part and the most unsatisfactory in any Home Guard exercise.

People are rifle-conscious and bayonet-conscious, but not very often message-conscious, and yet the right message at the right time is often worth several rifles and bayonets.

The following simple exercise should be carried out at frequent intervals in all Home Guard training.

Divide the company into groups of six. Line them up out of earshot with one another. Have No. 1 man of each group come to the instructor's table, and listen to a message. The message should be in the following form:

"Sergeant Perkins reports 15 airborne troops with 2 light machine-guns concealed in small wood on right of road half a mile from Heathfield crossroads. Has surrounded wood with scouts to observe movements, and suggests this messenger guide sufficient forces to point to wipe out parachutists."

This message should be read slowly three times to the No. 1 men. They are then told to return to their groups and whisper it to No. 2. He in his turn has to whisper it to No. 3 and so on until No. 6 has received the message. No.

6 will then write down the message as he has received it, and return it to the instructor.

No help must be given to any link in this chain. The message is simply to be passed as well as possible from man to man, and returned at the end of the chain in writing to the instructor.

This exercise should first of all be done without any hint as to the best method of carrying out such a task. It will soon be found that any No. 1 man who has not been trained in message-sending and receiving will at once say: "Oh, I can't remember all that," and he will be perfectly right.

When all the messages have been received in writing the various versions should be read out to all. Then the original message should be read.

People should be asked why they found it difficult, and quite a proportion will say that it is impossible to remember such a complicated message. Some will probably ask why written messages are not the rule.

The answer to this is that whenever possible messages should of course be written, but that every well-trained guide or reconnaissance man, or member of a patrol in guerrilla fighting, should make a habit of memorizing messages in case the written message is lost or cannot be delivered for some reason or other. It may well be, for example, that a man, fearing that he is about to become a casualty, or to fall into the hands of the enemy, will destroy the written message in order to prevent information getting to the enemy, indeed this must be done whenever such a possibility exists. It will be a great pity if the man, having destroyed the message, is able nevertheless to get through, but because he has not memorized the message, is perfectly useless when he arrives at Headquarters. It is nothing like so difficult to remember a message as most people imagine.

2. **How to Remember a Message.** Most people go about memorizing a message in quite the wrong way. They

try to remember the words. They try to learn the message by heart as if it was a piece of poetry.

It is usually found that untrained men will always get Sergeant Perkins's name right in the above message, but will go to pieces half-way through. Here is the simple way of memorizing this or any other message.

Do not try to learn the words of the message by heart. Listen quietly to the reading of the message as if you were receiving the information for yourself, and not in order to pass it on to someone else. The great mistake is to worry your mind and to make things harder for yourself by evil self-suggestions such as "I shall never remember that." Having listened quietly to the message, ask yourself the following questions, and give yourself the answers:

1. Q. "Who?"
A. "Sergeant Perkins."
2. Q. "What?" (does he report).
A. "Fifteen parachutists with two machine-guns."
3. Q. "Where?" (did he see this).
A. "In wood on right of road half a mile from Heathfield crossroads." (It will, of course, help if you know the country, as you should do if you are a Home Guard and in that case you will make quite certain that you know the answer to "Where?" by visualizing the exact spot.)
4. Q. "What done?"
A. "He has surrounded the wood with scouts to observe the movement of the enemy."
5. Q. "What to do?"
A. "Send troops to be guided by the messenger to destroy enemy."

If you remember to ask yourself these questions and tell yourself the answers, all you have to do when you whisper to No. 2 man is, not worrying in the least about the words of the original message, to repeat either to yourself or to him, the questions, and then to give him the answers. If he is

properly trained he will already be expecting answers to those questions in that order.

You can make quite certain after you have whispered all the information in the form of question and answer, that he has got it correct, by him repeating back to you the answers to the questions. He then passes on to No. 3 and so forth. If this is done, No. 6 will undoubtedly get back to Headquarters all the details correctly written down.

There are certain other details which may come into a military message, for example, the question "When?" and its answer. It will very often be very important to tell Headquarters the exact time when the event reported took place.

Besides this, it will be as well for the messenger always to make sure that he knows what time he got the message.

Nearly every military message will be found to contain material which can be memorized by these questions in the order given. The answer to "Who?" may contain information as to Sergeant Perkins's unit, but this can easily be memorized in the same way.

The above exercise is useful for showing the right and the wrong way of trying to remember a message. It is also useful if you have no chance of a more interesting form of exercise, for example, in bad weather inside the Drill Hall. But more elaborate exercises combining the necessity of sending correct messages with other jobs, are advisable whenever possible.

3. Reconnaissance and Message Sending over a Miniature Course. The following exercise is carried out at the Fieldcraft School for the purpose of combining practice in message sending with the use of cover, the choice of routes, and silent and invisible movement.

The success of this exercise depends upon two important points which must never be neglected:

- (a) Carry out your exercise over the shortest possible area

of country. The object is not to tire people out with a long walk, and a route of a few hundred yards is all that is required.

- (b) Have at least a quarter of the students observing. Lookers-on see as much of the game as those carrying out the exercise. Naturally they must sometimes take their turn with those doing the exercise, but by having a substantial number of observers the rest are kept up to scratch, and have their mistakes noticed and commented on, while by making the observers take careful notes and watch every detail, their powers of observation are rapidly improved.

The students are divided into groups of six, and placed near the starting point with a sufficient distance between each group for them to be able to discuss together their plan of action without the rest hearing. Each group is told that when the exercise starts, they are to stick to their preconceived plan of action, whatever the other groups may do. It is then explained that out of sight a few hundred yards away in a suitable position, the general direction of which is pointed out, there is a flag with a written message attached to it. This flag represents a scout who has been sent on to reconnoitre, who has discovered something about the enemy and who wants the message brought back to Headquarters, and that he is not able to bring it back himself.

The group of six are to be sent out from Headquarters to find the scout, get his message and bring it back again.

Between the starting point and the scout there is an enemy outpost whose exact position is known. The main position of the enemy is in the village one and a half miles away. Groups must therefore choose their route to the flag in such a way as to avoid observation from the outpost and also in such a way as to maintain cover from view of the enemy in the village in the distance. It is up to every group to decide upon the route it will take, and the way in which it will space out its members.

One of them only is to reach the flag and read the message, and he is to pass it back from man to man as they are spaced out along the route.

The enemy outpost is entitled to claim casualties, and he should be so placed that he has a field of view which makes it difficult, but nevertheless possible, for the flag to be reached without him seeing the men. In case of the leader being claimed as a casualty as he goes to or from the flag, the next man will of course have to take his place.

When everything has been carefully explained, observers are placed with notebooks, in pairs, to keep a watch on various parts of the routes. The observers take up positions from which they will be able to report on the skill or otherwise with which people move, and they must also, some of them, keep in touch with the outpost, who will signal to them any claim for a casualty that he may wish to make.

When the observers are in position, and when it is certain that the object of the exercise is quite clear to everybody, the groups are told to start off, one after the other, at intervals of three or four minutes. Care should be taken to adjust the intervals so that risk of one group overtaking another, and thereby confusing the observers, is avoided.

A competitive spirit should be maintained throughout, and the best group awarded a packet of cigarettes when it has been generally agreed that it has beaten the others in general efficiency, judged by speed in getting the message back, the accuracy of the message returned, and careful attention to detail about cover and silent and invisible movement.

At the end of the exercise the leader of each group must give a report of how he chose his route, how he spaced his men, what difficulties he encountered, and any other useful detail.

The enemy outpost will give his version of what has happened, and make his claims for casualties, and then the observers will fill in the picture.

Care should be taken to be sure that the observers know the sort of thing that they are to look out for. At the Fieldcraft School we do not carry out such an exercise as this until detailed training in the various branches of fieldcraft has been given.

4. When it is impossible, through bad weather, to carry out such an exercise as the above, message training can be usefully given indoors with the help of a sandtable model.

Sandtable models of various sorts can be made, but the following is perhaps the most suitable for purposes of training the Home Guard. It will be described in stages, which makes the construction methods clear, and it is suggested that every Home Guard unit should construct its own sandtable according to this model.

(1) *The Table.* If possible a round table 7 feet in diameter, otherwise a square table with sides of 7 feet.

The area that is to be represented by the model is the area within a radius of one mile of the Home Guard action station.

(2) A copy of the 6-inch Ordnance Survey Map covering this area to be pinned to the wall beside the table.

(3) The diameter of the sandtable model is to be 6 feet, therefore the scale will be 3 feet to the mile. This involves enlarging the 6-inch Ordnance Survey six times as the base of the model. A rod of wood should be constructed, and the scale marked out along it.

(4) The walls of the model are to be formed either of very strong cardboard, or much better, thin metal strips, so that a circular enclosure 6 feet across with walls 6 inches high is firmly fixed to the surface of the table.

(5) The surface of the table is painted blue, and a quarter inch of sand is distributed evenly all over it. This is to represent the lowest contour line to be found on the area in question.

(6) On this quarter inch of sand the contour lines are to be traced, and strips of cardboard to be pinned all along the

length of each contour line. The height of these strips will depend upon the difference in altitude between the highest and lowest part of the area in question.

Supposing the lowest part of the area is close to sea level, and the highest between 300 and 400 feet, three sets of strips of cardboard, 1 inch, 2 inch and 3 inch respectively can be placed on the 100, 200 and 300 feet contour lines. The spaces between will be filled up to the tops of the strips of cardboard, as a first approximation to a representation of the relief.

The sand in these temporary compartments should now be shaved off into a continuous slope, and the cardboard strips removed. You will now have a representation of the relief of the area as represented in the 6-inch Ordnance Map, but this will be by no means sufficiently accurate. It will therefore be a very valuable, practical exercise for parties of the Home Guard unit to examine the ground, and to note where minor changes of level exist, too small to have appeared on the map, but very possibly vital for military purposes. A very valuable morning can be spent by dividing the area into sectors, and sending out surveying parties of three or four to each sector, to report on such details to be included in the model.

N.B.—If there is a river or static water in the area, this may be represented either by smoothing down to the blue of the table, or by placing a piece of blue paper at approximately the right level of sand, to represent these features.

(7) The fields will now be added by marking their boundaries with a pencil point, and all other surface features of importance must be represented by suitable symbols. Whenever a natural feature is such that it offers cover, e.g. hedges, woods, the symbol must be something which stands above the sand surface; other features may be represented by symbols flush with the surface.

Here are some suggestions for easily home-made symbols:

(a) The contents of fields and other cultivated areas are to

be represented by sawdust. Standing corn will be undyed sawdust, grass fields sawdust dyed green, ploughed fields sawdust dyed brown.

(b) Hedges should be made out of strips of paper coloured in three different ways:

(i) Hedges affording good cover from view painted green.

(ii) Hedges providing poor and uncertain cover painted green with white gaps left in the length of the hedge.

(iii) Hedges with ditches by their side providing cover from fire as well as from view painted green on the higher half, and red on the lower.

(c) *Woods.* The symbols for these should show at a glance whether the wood offers good cover from view, and whether the wood is easy or difficult to move through. For this purpose the following three symbols are suggested:

(i) For the trees, hairpins with bits of dried moss or pieces of a loofar stuck in them can be used. If there is a great deal of undergrowth, and therefore difficulty in passing, these hairpins should be stuck into an area covered with green sawdust to represent the undergrowth.

(ii) Good paths can be left bare, or represented as strips of undyed sawdust.

(iii) If the wood is clear of undergrowth, and therefore easy to move through, the space should be covered with brown sawdust, or left as bare sand.

If desired, as on military maps, different shaped tree symbols can be used to represent evergreens and deciduous trees.

(d) Roads and important paths should be represented with uncoloured sawdust. If there is a stream or a ditch on either side, this should be represented by a

strip of paper coloured blue for a stream and white and blue alternately for a dry ditch. Care should be taken to put in the hedges, though it will probably not be practicable to put a hedge on both sides of the road symbol.

Roads suitable for military transport may be represented by sawdust dyed red.

- (e) Railway lines are best represented by strips of paper with the lines and sleepers represented, and care should be taken to make clear any cuttings or embankments.
- (f) *Bridges.* Whether over rivers or under or over railways, these should be made with little cardboard models.
- (g) Buildings need not be very elaborate, but should represent roughly their nature, such as row of cottages, isolated farm, church, etc. They can be made out of small blocks of wood appropriately coloured.
- (8) Having constructed the sand model, and sufficient permanent symbols, you must construct other symbols to represent men and equipment. These should be as small as possible, so as to prevent giving the appearance of being hopelessly out of scale.

(9) Besides the features already mentioned, the following should be represented on every model: post and telegraph offices, railway stations, petrol pumps, garages, A.R.P. and A.F.S. Headquarters, Military Headquarters, police stations, doctors, nurses, hospitals, local electricity supply, gas supply, water supply, the best observation points, camp sites, tank obstacles, defiles and other military details.

5. For the benefit of those who cannot buy the standard material for constructing a sandtable model, or who have not got the space to set this up permanently, I append some particulars of the excellent methods devised by Mr. E. F. Patterson for training wardens in Newcastle-on-Tyne by means of exercises carried out on models. Mr. Patterson

made all sorts of apparatus out of material which either cost nothing at all, or very little. The following is his description:

The materials required are large sheets of strong, dark brown or black paper, strips of white paper of various widths, a roll of light brown gummed parcel strip, a paste-pot, a supply of half-inch corks, a dozen old draught pieces, one inch diameter corks or similar size circular pieces of wood, one dozen one-inch cubes of wood and a supply of circular gummed labels. Alternatively the tops of the corks, draughts and blocks may be painted, or circular labels can be cut out of coloured card or paper, and seccotined on them.

Each sheet of brown paper represents a small area near a Wardens' Post according to the scale of the enlargement. Strips of white paper are pasted on the brown sheet to represent roads, streets and lanes, according to their width. On either side of the white strips, narrow strips or rectangular pieces of light brown paper are gummed to represent buildings, houses, etc. Wooded land and water may also be represented, when required, by green or blue strips of paper pasted on the background sheet.

The other apparatus is equally simple. Half-inch corks painted or with gummed coloured labels on their tops are lettered or numbered in Indian ink and represent personnel, either individual wardens, casualties, police, or small units such as First Aid Parties or fire crews.

Old draught pieces, or circular pieces of wood or cork, one inch in diameter, to which are gummed coloured labels or circular pieces of white paper or card which may afterwards be coloured with paint or crayon, represent vehicles such as fire pumps, rescue party cars, ambulances, etc.

One-inch square blocks of wood, coloured on top, or matchboxes covered with coloured paper, represent incidents, such as a high explosive bomb crater, unexploded bomb, gas bomb crater or burst main.

Gas vapour is represented by coloured transparent paper or tracing paper tinted to represent the gas indicated and degree of density. Incident and rendezvous flags can be made from small squares of white paper, coloured and gummed to a pin.

The working of the exercise depends upon only two things, the person who sets the exercise must know his subject matter and should have a detailed knowledge of the district which is represented on the map, or alternately the producer should be assisted by umpires who are efficient in the various services and know the district intimately.

The exercise is begun by laying out the brown paper sheet on a table on which is placed one or more square blocks to represent the incident and around which are seated the wardens taking part in the exercise. The producer then reads the story of the incident up to the stage when the first warden arrives on the scene of the incident. Each warden taking part in the exercise will have a numbered cork or a piece representing a particular service or vehicle. When the preliminary narrative is completed the producer gives the word to commence to Warden No. 1. Warden No. 1 writes out or gives a phonogram message reporting the incident and calling for the necessary assistance. At intervals of one or more minutes the producer calls additional wardens to the scene of the incident. As soon as their number is called each warden places his cork on the map where he is supposed to be at that moment, usually he is reporting to the Incident Officer. Meanwhile the producer reads the messages sent out by the Incident Officer and places on the

table, after a suitable interval to allow for the time to get there, such vehicles and services as are called for. The producer keeps a careful check of the times when messages are received and services placed on the board. Whatever move the individual warden or unit would make on the actual area of ground in an outdoor exercise must be shown by the movement of the corresponding corks and circular pieces. At the same time each man must state what he is doing at that actual moment, i.e. adjusting his respirator, attending a casualty, running with a message. A careful note must be made of any unusual or wrong action taken by a warden or unit, but criticism reserved until later.

After a suitable lapse of time, to allow all the wardens and units to come into action and complete their duties, the incident is closed and the producer gives his criticism of each participant's actions, according to the development of the incident.

Finally, a model solution should be read, describing how the producer thought the incident should have been carried through, supported by copies of model report messages, and the exercise should end with a discussion and criticism from the wardens themselves.

I have left this in Mr. Patterson's own words, and as it stands it is of course intended for A.R.P. services work. It will be a useful exercise for any Home Guard to translate the idea into something useful for his unit.

6. Additional Hints on Cheap Sandtable Models. Captain R. Pearce-Gould has issued a very useful pamphlet on the construction of sandtables out of inexpensive materials, and I am grateful to him for the following additions to the above account.

He advises the use of sawdust instead of any sand. The dyeing of the sawdust can be done with Drummer Dye

according to the instructions on the packet for dyeing linen.

Undyed sawdust forms the bulk of the contours, and should be covered with paper or old sacking as so to separate it from the green and brown sawdust when this is laid on top. Rivers, lakes, etc., can be represented by sawdust dyed with blue ink.

Gorse and other bush growths can be made from metal wool sold at Woolworths' for cleaning saucepans. This should be unrolled and rubbed on a freshly painted green piece of board and hung up to dry. Fences he makes out of loofahs which can or could be bought at Woolworths' for sixpence. These are dyed with green Drummer Dye, and cut into strips of about $\frac{1}{4}$ inch to $\frac{3}{8}$ inch in width. Strips of cardboard $\frac{1}{2}$ inch wide are cut from old boot boxes, glued with carpenters' glue, to the strips of loofah.

For first-class roads he uses insulation tape rubbed in cement dust. For smaller roads and paths $\frac{3}{4}$ inch and $\frac{1}{2}$ inch tape dyed brown. For railways he advises as follows:

"Take some lengths of 1 inch and $\frac{3}{4}$ inch tape, and dye brown, aluminium paint, some lengths of thin string. On the $\frac{3}{4}$ inch tape stitch with grey or silver thread the painted string, two rows, three sixteenth inch apart centrally. For double track stitch four rows of string with $\frac{1}{4}$ inch between the two tracks on the 1 inch tape."

Captain Pearce-Gould wisely suggests that the making of the sandtable for the local Home Guard should be entrusted to the local Boy Scouts, Girl Guides, and W.V.S.

7. Framed Landscape Models. For those Home Guard who can afford it, the framed landscape models made at the Defence Research Studio, Netheravon, Salisbury, Wilts., is for many purposes preferable to a sandtable. The initial cost is far greater, but the upkeep is far less costly in time. These models are made from Ordnance Survey maps and air photographs of your own district, on a scale of 2 feet to 1,000 metres.

Full particulars of these can be got from the address given.

8. Messages Written or Verbal. We have laid great stress upon ability to memorize a message. There are, of course, occasions when a written message is far more suitable, in fact written messages should be the rule where there is no danger of the enemy getting possession of it, but whenever a message is written you should also memorize it.

Written messages are absolutely essential when there is no danger of enemy interference and possibility that you will need to verify any information passed to or from you.

You *must* be in a position to explain yourself if anything goes wrong with your message. For this purpose (except when the enemy is about) you must keep a written record of every verbal message you send or receive, whether by telephone or word of mouth. You must write down any message that you are going to give by telephone before you give it. You must write down any message that you receive by telephone, and repeat it back to the sender, so as to be sure that you have got it right.

You *must* practise the writing of messages, so as to be perfectly certain that you know how to describe something in a way which will give accurate information to somebody who has not seen it. You *must* make it a rule that all messages are automatically repeated back.

For this purpose again the sandtable model is very valuable. The following exercise should be carried out:

Place all the students except eight around the table. Send the eight to the other end of the room. Get one student to arrange an incident. Call four of the eight students, each with notebook and pencil, to look at the model, and to report, and to write down a message describing what the incident is. These four written messages are to be handed one to each of the other four students. The sandtable model is to be set as it was before the incident was depicted. The four who have read the message must now in turn set out the incident as they imagine it to be after having read the message about it.

This exercise will show first of all that without practice people are not good at sending complete and understandable descriptions, and secondly that the recipient of a message will have difficulty in reproducing the incident described in the message because important details will have been left out.

You may find, for example, that each of the four men sets up the incident in a different part of the model, that vital details have been forgotten. See that those students who are watching are kept on the alert by having them write down criticisms of the mistakes made.

9. An Exercise in Reconnoitring. It is essential that you should practise reconnoitring in the particular piece of country over which you will have to work in case of invasion. Apart from the necessity of knowing every inch of that country, actual work in the field is required so as to give you an idea of the time that it takes to do a useful piece of reconnaissance.

The following exercise should be carried out by a section working from its action station.

Take the 6-inch O.S. map and draw a circle of one-mile radius round your action station. Choose suitable points all round the circumference. These points should be possible airborne troop landing places, or important lines of communication, or good observation points, or military objectives, or points in a direct line from your action station to military objectives outside the circle. There will probably be at least twenty suitable points on your own particular circumference.

If you have sixteen men working in your section, divide them up into groups of four, and choose the four points on the circumference next to one another in any direction. The following instructions are given to each group of four.

They are to leave their action stations and find the best route for taking a small body of troops to surprise an enemy

position situated at one or other of the four chosen points. They are to bring back information about the following details, all of which, when checked, should be written down and kept in a section log book for future use.

- (a) The best route to take.
- (b) The time it has taken them to reconnoitre the route.
- (c) The time it would take to lead troops along the road by day or by night.
- (d) Information about cover on the route.
- (e) Information about points along the route suitable for an enemy outpost, and therefore requiring treatment if troops are to pass it.
- (f) Information about the field of fire to be obtained at the end of their route, dead ground and other such details of value to an officer leading his men against enemy formations at the points, and the possibility of surprise.

When the guides have made their reconnaissance, one has to return with the details to action station, one has to remain at the point until the end of the exercise, and the other two are to proceed as follows:

Two of Group 1 from point 1 to point 3 without being seen by the man at point 2. Two men from point 2 to point 4 in the same way without being seen by the man at point 3, and so with the two men from points 4 and 3.

Having reconnoitred this new route along the circumference, they will return along the routes from the other point that they have reached, reconnoitring the country in the same way, while the men who remained at the four points watch out and observe their movements and fieldcraft on the return journey.

Finally these men return to their action station, and a general discussion takes place. The object of the discussion is to compare all the reports and then write up carefully from the notes accurate information, accompanied by

sketch maps of the routes, to be used later, and also to criticise the fieldcraft and reconnoitring methods of the men in all groups.

It will be found that for this to be done really well, as much as three hours may be necessary.

Only when every member of the section has reconnoitred in this way every point chosen on the circumference, can it be said that the Home Guard section as a whole knows its country well enough to be the eyes of the Army.

One further step is required, and that is to co-ordinate such knowledge with similar knowledge gained by members of the adjoining units of the Home Guard. For this purpose exercises should be carried out jointly by several platoons, so that finally it is possible for relays of guides to take a body of troops along previously selected routes from one end of the Battalion territory to the other.

10. The Map and the Ground. Instruction in map reading will not be given in this Manual, since it is usually adequately handled as a separate course, for which a Home Guard Training pamphlet is provided by M.T.7.

The Home Guard must know how to read a map, so as to be able to converse intelligently with troops whose only knowledge of a particular piece of country may well be what can be got from their maps, but map knowledge can never be a substitute for knowledge of country gained by reconnoitring the country itself.

The sort of situation for which the Home Guard should be prepared may be illustrated like this:

OFFICER: "Air reconnaissance reports enemy activity at map reference 119654. How can I get 200 men there as quickly as possible?"

All that the map will tell the officer is that there is or is not a road to the point indicated, and that the contours and surface features are roughly so-and-so. The Home Guard, on the other hand, who has carried out the exercises outlined above, will be able to supply the officer with information

about many details of military importance not obtainable even from a 6-inch map.

In old-fashioned warfare the 1-inch map supplies most of the information required for normal troop movement, but in the kind of warfare that will take place during a Nazi invasion, not even a 25-inch map can be relied upon; only the Home Guard will be in a position to come to the rescue.

11. Four Final Rules. Never forget the following essentials of a good piece of military information:

- (a) Information to be of value must arrive in time.
- (b) Negative information is always of value.
- (c) The degree of reliability of information should always be given.
- (d) The time the event took place should always be given.

SECTION IX

BIVOUACKING IN CONTACT WITH THE ENEMY

1. It is essential that the Home Guard should get practice in two matters connected with camping:

- (a) How to behave, how to move about, how to carry on one's daily job, with the enemy in the neighbourhood, without giving away your existence to him.
- (b) How to sleep and live in the toughest conditions and yet be comfortable and so rested when the time of action comes.

Every Home Guard should get himself into the frame of mind of expecting that some day he may have to behave as the Russians are doing at the present moment, that is to say, be self-sufficient and self-supporting, in spite of being cut off for the time being from the normal sources of information, supply and command.

It is quite impossible to get into this frame of mind unless one practises deliberately. For example, the sentry who, whenever he is on duty, stands in the middle of a gateway, well out into the road, so as to be able to greet the passers-by, is doing a bad job both from the point of view of what he is supposed to be doing at the moment, and from the point of view of his own safety later.

Home Guard posts, observers, guards and patrols should carry out their duties as if they had been told that the enemy had occupied positions within a mile or so of them.

The sentry who is being content to behave time and again as no sentry could possibly behave in serious warfare and

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get away with it, is making his real task all the harder. Anyone with the slightest knowledge of stalking and unarmed combat could eliminate half the sentries between my house and Charing Cross, and the Nazis know a great deal more than a mere smattering of these subjects.

At the Burwash Fieldcraft School we pay great attention to this point. We insist that from the moment the students arrive at the farm gate about a quarter of a mile from the house, they are to behave as if the village on the hill opposite was in the hands of the enemy. This means that they must maintain:

- (a) Strict cover from view of the village. They may not just walk down the roadway or cross fields, they must keep under hedges and if necessary crawl. During the whole time they stay at the School they must never move without instinctively saying: "Am I getting in view of the enemy?" Only if they carry this out conscientiously can they get in the right frame of mind to appreciate the work they have come to do.
- (b) They must maintain strict track discipline. It is pointed out to them that a few men walking across a field will leave marks that could easily be picked up by any reconnaissance plane, and that their tracks will appear as a silver mark on the next air photograph that is taken.
- (c) Whatever they are doing, they must avoid noises which will carry more than 200 yards; in practice this is almost impossible, but they should get into the frame of mind which makes them ask instinctively every time they open their mouth, every time they crack a stick, every time they bang a cooking utensil, "Will that sound give me away to the enemy?"

Only by getting into a state where these questions are asked all the time can the Home Guard fit himself for his job.

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2. Having got into the right frame of mind, by maintaining the strict discipline described in the last paragraph, you must now learn to bivouac in the face of the enemy, that is to say, you must learn to behave as the Russians are doing behind the German lines, and get away with it.

You should say to yourself, "If the Nazis capture my village or occupy part of my town, I shall take to the wood behind my house and make things uncomfortable for any Nazis who remain in the neighbourhood. I must therefore learn how to be comfortable in that wood."

Bivouacking in these conditions must be carried out with the minimum of equipment or, for that matter, if necessary, with no equipment at all. I will describe the routine which has been carried out, wet or fine, at the Burwash School.

The camp site is a wood on the side of a hill. This makes the camp inconspicuous from the air. For administrative purposes the students are divided up into five camps of about ten each; each camp has its camp leader selected by the men in the camp. The camp leaders are responsible for discipline, for the return of School equipment, for the posting of sentries during black-out times, the sentries to be changed hourly, to keep contact with one another, to watch out for possible surprise attacks, and the sentry on duty from 05.00 hours to 06.00 hours to see that water is boiling for breakfast at 06.00 hours.

Finally, it is the duty of the camp-leader to see that when the camp is struck at the end of the School session, all signs of occupation have been entirely hidden. (This last point is of extreme importance.) Movement of Home Guard or troops in wartime may give away important information to the enemy; the less he knows, therefore, about them the better; the sooner we realize this, and learn how to hide our traces, the better also.

Men prepare bivouacs in pairs, each sleeping on one ground sheet, and constructing their shelter with two other ground sheets. In the late autumn and winter months it is

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necessary to have a covering, so if the men have only one ground sheet each, it should be placed above them to make a ridge tent.

To make a ridge tent, if the standard waterproof cape is used, two capes are threaded together with seisal and hung between two trees, or from one tree to a stake placed in the ground. The seisal is threaded through the capes so that the top of each cape folds over the ridge and falls on to the slope on the other side, as in the diagram. In this way a waterproof covering is ensured. The bottom of the capes should be one foot from the ground (except in severe weather) as that gives more room for two people within, and seisal



FIG. 27.

guy ropes are threaded through the holes and fixed to wooden pegs in the ground. Unless the men are very large, there is sufficient room in such a bivouac for two men, even though the waterproof covering is brought down to the ground, and in severe weather this should be done. Bracken or dry long grass is placed under the two ground sheets, and the bivouac is complete.

To make the ridge a satisfactory job the seisal should be tied by a half-hitch at sack end of the ground sheet, and the seisal between the two knobs should be slack, so that when the free ends are pulled on, the ground sheet becomes taut. If this precaution is not taken, the neck of the ground sheets

will open out. In windy weather the free flaps should be tied down. It is not necessary to place a stick to form the ridge. The maximum amount of seisal required with four guy ropes on each side is ten yards.

The pegs should not be hammered in, but a hole should be made with a bayonet and the peg pushed home with the head.

Lean-to shelters can also be made, the cape ground sheets being laced together on the straight side, and placed vertically and not horizontally. This covering can then be tied into a hedge by a stick being fastened to the upper edge. No guy ropes are necessary for a lean-to, the eyelets being fixed directly into the ground.

It is important to get the ridge of the tent as low as possible, and to spread the tent out, but not to lift the sides.

Should a man be alone, he can with one ground sheet make a ridge tent, like the hood of a cradle, to cover the upper half of his body, or a lean-to, placing the ground sheet horizontally. This, however, is rather a tight fit, but is much better than wrapping himself up in the ground sheet and then lying down.

Men are not recommended to paint their capes and ground sheets with so-called disruptive patterns. These will not in any way increase their invisibility. If the bivouac is made under a suitable tree it will not be visible from the air, even in winter, and if it has to be in an exposed position the disruptive colouring will probably not fit in with the surroundings. It will be much easier and better to conceal the bivouac with a few branches or weeds suitably placed. These should not, however, be thicker than the general undergrowth.

3. How to be Comfortable. It is absolutely necessary for the Home Guard to know how to be comfortable when lying on a ground sheet or on the bare ground. Unless he is able to sleep the night before, he will be a poor soldier on the next day.

Some people like to dig a hole in the ground to take their hip-bone, but this is seldom advisable. A better way is to lie on one's side, usually the right side, and to draw the left knee well upwards and forward, while the right leg is kept straight out. In this position the hip-bone ceases to be a problem, for one is lying on the front of the thigh and the hip is off the ground. One reverses the position of the legs when lying on the left side.

Sleep depends also upon warmth, and particularly upon not having cold feet. For this reason, it is worth while taking great care to learn exactly how to fold one's blankets.

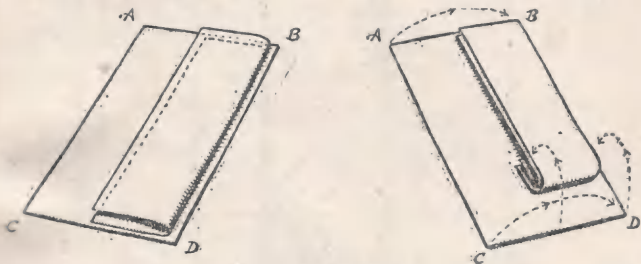


FIG. 28.

It is almost impossible to prevent getting uncovered unless one makes some form of a sleeping-bag, and the following way is the best, using two blankets. Lay one blanket flat out, and fold the second its full length, placing the folded part along B D. Turn the foot end under but on top of the first blanket. Bring A C of the lower blanket over the second blanket to B D and turn the foot part up.

This makes a perfect sleeping-bag, for there are two layers of blankets above and below the body, and four above and below the feet for extra warmth, and the fold of the inner blanket comes against the back of the sleeper.

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Another method is to make use of a recent idea, and a very satisfactory one, too, for placing the blankets on to a stretcher and for covering up the patient. The first blanket is laid out flat as before, and the second blanket is folded into three lengthwise, with the free sides uppermost, and placed down the middle of the first blanket about a foot from the head. The lower part of the upper blanket is then opened to form a V as in Fig. 29. The man lies on his

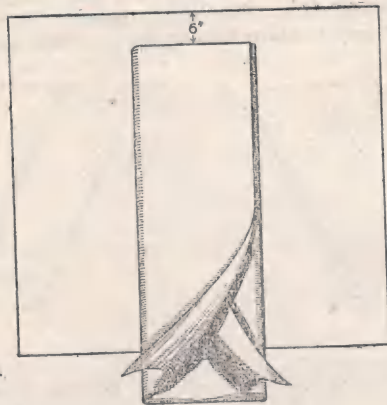


Fig. 29.

side on this blanket, with his shoulders well above the top of the inner blanket. The open part of the V is drawn up over his feet and the sides are tucked in round his ankles. He then draws the two folds of the lower blanket over him. The result is four thicknesses of blankets under him and two above, with the feet covered up. A cord tied round the ankles loosely above all the blankets is useful for keeping them in position.

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A third way is to use the blankets as in the sleeping-bag without pins, and the folds at the feet being turned under. Again a cord round the lower part is useful, but it is almost impossible to keep covered up this way when bivouacking for any length of time, though it is quite useful in a building.

With one blanket the only way is to stand up and fold the blanket round one, under the arm-pits, from right to left round the back, and to get as many folds of the blanket as possible on the side next to the ground. Then lie down, and it is useful to get a comrade to tie a piece of cord loosely round the legs below the knees.

If the enemy is in the near neighbourhood, men must sleep in their boots. If they are permitted to take them off they must have them so that they can immediately put them on again, and so that nobody can steal them.

In the same way the greatest care must be taken to prevent the stealing of weapons during the night. This is a greater danger on the north-west frontier of India and similar places, where the rule is to sleep with a rifle on one side and a bolt on the other, than it is likely to be in the conditions of a Nazi invasion. It is, however, worth while paying attention to detail.

You should be particularly careful to avoid having any object which reflects light outside your blanket or your bivouac. I have frequently located the position of a bivouac from some distance under trees by the light reflected from the metal case of a torch whose owner had left it by his side but exposed.

4. Silence in Camp. We have found it necessary to have the students at the farm and to send demonstrators to the camp site about 200 yards away to make the kind of noises which the students have made while bivouacking. Most people have no idea of how clearly, especially at night, sound travels. Anything above a whisper will be heard

at 200 yards, and the noise of cracking sticks is sometimes like machine-gun fire. These things must be heard to be believed, and believed they must be, since nothing is more important than learning how to keep quiet.

It is practically impossible to make even the simplest bivouac in the dark. Every effort should be made, therefore, to reach the night's resting-place in daylight, and if this is impossible there is nothing for it but to sleep under the best natural cover obtainable.

It is a great mistake also to imagine that the night was necessarily made for sleep. It is excellent discipline for the Home Guard to snatch an hour's rest at any time, although of course the normal eight hours is an excellent thing.

5. Cooking near the Enemy. This is almost impossible. The danger of giving away your position by smoke cannot be exaggerated, and it is impossible for even the most skilful man to make a camp fire that can be certain not to create smoke. It is, however, good practice to do your best.

It is quite possible to have a fire for cooking at night, for then smoke does not matter. But the light or glow does, and this can be overcome by placing the fire in a culvert, or by making the fire in a shallow trench about a foot wide and placing corrugated iron over it with a few holes knocked in this. This will make a good hot plate on which to boil water or cook.

Obtaining Fuel. It is possible to find dry fuel even in the wettest weather, provided it is looked for in the proper place. This is actually growing on trees. Dead wood should never be snapped off trees, owing to the noise that would be made. It should be cut off with a sharp knife.

Your chief object will be to reduce the amount of smoke. This means that you must have everything as dry as possible, not only the fuel. You should dig a small trench in the ground, and if the ground is very damp line it with an old piece of iron or tin if you can find it.

You should aim at a small fire of red-hot embers, and not a flaming fire. This can best be achieved by putting on very small bits of dry stick, two or three inches long only, each one cut with a knife and not snapped. On no account must turf be used, as even the driest turf contains sufficient moisture to increase the smoke seriously.

Also remember you will probably require dry wood in the morning, so it is best to collect it the night before and place it in a sheltered place.

When leaving the camp site the fireplace trenches must be filled in carefully after making certain that the fire is out. In peaty soil the fire may travel underground and eventually burst out, making quite a large conflagration.

It is important to choose a place where there is not much grass or soft ground for the cooking place, which will also be the eating place, because the tracks of men converging are very easy to see. Choose if possible a bare spot in a wood, and well off the routes likely to be used by an enemy.

At night a properly constructed fire, fed only with very small sticks, can have its light successfully concealed, indeed it is much more easy to conceal the light of the fire than its smoke, and therefore when cooking can be risked, it should be after dark.

If you are forced to go to ground in occupied territory, your wisest course will be to light fires where fires may be expected, e.g. near friendly cottages.

When you are really on the run, two precautions should be taken when fires are lit, even at night.

First, the posting of scouts along the probable routes which the enemy will use if he sees you and tries to surprise you. These scouts must be able to warn you, and you must know precisely how to make your getaway.

Second, if you are moving about the country, never make your fire at the same point twice running, unless you have every reason to suppose that you have escaped observation.

It will usually be best to obtain cooked food from friendly

civilians, but remember that all kinds of precautions must be taken to prevent them getting into trouble, or getting you into trouble. It will be wisest, for example, to have the food left at a pre-arranged spot, and to send only one man to collect it. Every possible care must be taken to avoid leaving signs that food has been eaten after you leave.

6. Latrines and Sanitation. It is a great mistake to suppose that latrines should be in the form of deep trenches. Except for a rather large camp to be occupied for a considerable time, the best as well as the simplest form of sanitation is to dig trenches about 3 feet long, 9 inches in depth and width. Whenever used, the faeces and paper must be completely covered by soil being kicked into the trench. It is better to urinate elsewhere than into the latrine, and absolutely necessary when the soil is clayey, or otherwise the trench will be quickly filled. As soon as one trench is getting full, then it is filled in neatly with soil and turf and another is dug.

It should always be remembered that a percentage of human beings, without knowing it, are typhoid carriers, that is to say, their bodies contain the bacteria which cause the disease, without in any way suffering harm. These same bacteria, however, carried from their excreta by flies to food, will cause typhoid in another person.

In ordinary life carriers are not such a danger to the community because of the great care taken to prevent contamination of water supplies by sewage. Such contamination will be one of the greatest dangers during an invasion.

When bivouacking, shallow latrines can be made either for each camp section or by each man singly. The camp leader should indicate the general direction, which should be marked temporarily for the information of the rest of the camp. Unless others are going to bivouac in the same spot afterwards, all marks will of course be taken away when the bivouacks are struck, but if other men are to use the same

spot the hole should be covered with crossed sticks. If latrines are made in this way, natural forces of decomposition will eliminate everything within three or four weeks. Deeper trenches may still remain un-eliminated for months, and are therefore a potential source of danger to wells and other water supplies in the neighbourhood.

7. The Bivouacs at Night. When the Home Guard bivouacs he should always include the possibility of surprise night attacks in his training, and sentries should be doubled.

This means that they must be intelligently placed, that each man must be prepared for a sudden alarm, and that carefully thought-out plans must be laid beforehand and understood by every man, so that an attack can be dealt with the least amount of confusion.

Throughout history it has always been comparatively easy for an enemy to throw a camp into confusion at night-time. There is great danger, unless proper thought has been given beforehand, of the camp occupants firing at one another.

It is the duty of every camp leader to inspect the camp site and neighbourhood immediately upon reaching the camping ground. He will note the possible approaches, he will block them with trip wires to which tin cans filled with stones have been attached, or he will barricade them with brambles and undergrowth so as to obscure them to a possible enemy, and also so as to increase the difficulty of the enemy moving noiselessly. He will indicate the only routes left open for movement through and round the camp, and men leaving the camp to gather fuel or to go to latrines, or for any other purpose, must use these routes only. These routes will be cleared of dry sticks and other obstacles, and they will be chosen with an eye to the ease with which tracks can be covered if necessary.

At night the sentries will patrol all approaches, but they will only move if it is absolutely necessary, and they will

always avoid standing on any of the open paths, since even on dark nights these will show up light and enable the sentry to be seen a considerable distance away.

The sentry will bear in mind always that he and his comrades occupy the strong position. It is up to the enemy to find them rather than for them to find the enemy. He must never challenge until he is in a position to shoot. If he is suspicious he must remain absolutely motionless in the shadow of bushes or trees. He should keep a clear picture of the surroundings in his mind, and he ought to know precisely from what directions the enemy can approach so as to eliminate from his consideration all impossible approaches. This will save him a great deal of indecision if he hears noises from places to which the enemy could not possibly have penetrated. He will know that the movements of his own men have been reduced to the minimum (nobody will leave the camp without warning the sentry that he is doing so, and everybody will return to the camp by the same route and past the same sentry as when he left). He will, therefore, be able to judge what sounds are likely to be dangerous.

Sentries should, wherever possible, be placed at a sufficient distance from the camp for any enemy to be observed before he has got within grenade range. Nothing is more likely to confuse the camp than a hand grenade thrown suddenly into its midst.

A sentry will remember that the well-trained enemy will make every effort to surprise him noiselessly. He should therefore be skilled in unarmed combat. On his side also he should make every effort to surprise the enemy; especially at night-time he should avoid using firearms if it is at all possible. Nothing is more disconcerting for an attacking force than not to know what has happened to its patrols.

Sentries will have to use their own judgment about rousing the camp. In no circumstances should sentries in other

parts of the camp leave their position if they become aware of trouble at another point. In nine cases out of ten camp sites will be attacked from more than one direction.

The double sentry will use its discretion as to when to send back one of the number for assistance.

A general alarm should be avoided whenever possible, because it is tiring and bad for morale, because it gives away the position of the camp and because it is extremely confusing and liable to lead to casualties.

Unless a sentry has reason to believe that the attack is in force he should send back his companion to rouse a section of men specially detailed for the job when the camp was organized.

Let us repeat finally—an enemy attacking a camp at night is in the dark in every sense. The best thing is to keep him in the dark as long as possible.

Note 1, p. 49.

Even with a simple matter like crossing a gap it is necessary to drill yourself always to do the thing as well as possible, and this is a good drill which should be practised as such by a section leader and his men.

Collect all your men together quickly, under cover at your end of the gap, and then make a controlled dash across the gap to reach the other side. On arrival, the men should immediately disperse again and take any cover from fire they can find. If you are going to collect your men like this, never make the mistake, unless they are under good cover from fire, of sending two or three of them across the gap first, thereby warning the enemy that there may be more men on your side of the gap.

Note 2, p. 57 Section (c).

N.B. The description of the stalking course was written before it was actually constructed. When we got down to using it, we found that, valuable as it was for discussing the problems of silent walking, it was even more valuable for teaching the use of cover.

By the side of each section (the sections had to be reduced to five yards instead of ten in practice) various types of cover were erected, and on the other side various kinds of background.

Students were then shown the proper way to deal with the problems set by the cover, and also the effect of good and bad backgrounds upon their conspicuousness.

A full description of this will be available later.

Note 3, p. 61.

The sentries outside Buckingham Palace stand for two

things, smartness and efficiency, and military ceremonial. While we must do everything to maintain in wartime the smartness and efficiency of the Guards, the ceremonial has to go.

It is, of course, because the Guards know exactly how to carry on the smartness and efficiency, and to drop the ceremonial, that they remain the model in wartime of what a soldier should be. Unfortunately, especially as far as sentries and guards are concerned, the Home Guard has not always achieved the smartness and efficiency of the Guards, and has not always been able to leave behind, as they do, the ceremonial side.

The Guards outside Buckingham Palace in peacetime are meant to be looked at. The well-trained Guardsman (Home Guardsmen as well) on action stations will take good care that as few people as possible see him. That is really the crux of the whole matter.

Note 4, p. 75, paragraph 16.

Although England has few large rivers, she is blessed with innumerable small streams. These will be useful for checking enemy motorised transport, especially motor cycles and the smallest types of tank. Quite a small stream will hinder these if the banks are perpendicular and several feet high. This is why roads over bridges offer perfect points for road blocks.

You should not, however, overestimate the value of any natural tank-stop. One of the things which the Germans have shown themselves brilliantly able to achieve is the rapid fording and bridging of rivers in a way to avoid delay. On the Continent, this engineering skill played havoc with any ideas of defence based upon bridges over the larger rivers in Northern France.

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